

PRINCE WILLIAM SOUND MANAGEMENT AREA
1994 ANNUAL FINFISH MANAGEMENT REPORT



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PRINCE WILLIAM SOUND SALMON AND HERRING FISHERIES

MANAGEMENT AREA DESCRIPTION

The Prince William Sound (PWS) management area encompasses all coastal waters and inland drainages entering the northcentral Gulf of Alaska between Cape Suckling and Cape Fairfield (Appendix A.1). This area includes the Bering River, Copper River and all of Prince William Sound with a total adjacent land area of approximately 38,000 square miles.

The salmon management area is divided into eleven districts that correspond to the local geography and distribution of the five species of salmon harvested by the commercial fishery. The management objective for all districts is the achievement of escapement goals for the major species while allowing for the orderly harvest of all fish surplus to spawning requirements. In addition, the department follows regulatory plans to manage fisheries and assist private non-profit (PNP) hatcheries in achieving cost recovery and brood stock objectives.

Six hatcheries contribute to the area's fisheries. Five are operated by the regional aquaculture association, Prince William Sound Aquaculture Corporation (PWSAC). The Gulkana Hatchery in Paxson augments the production of sockeye salmon to the Copper River. The Cannery Creek Hatchery located on the north shore of the Sound, and the A.F. Koernig Hatchery in the southwestern Sound produce pink salmon, the Noerenberg Hatchery in the northwestern Sound produces pink, chum, coho and chinook salmon and the Main Bay Hatchery in the western Sound produces sockeye salmon. Valdez Fisheries Development Association (VFDA) operates the Solomon Gulch Hatchery in Port Valdez and produces pink, chum and coho salmon.

Gear for the salmon fishery includes purse seine, drift and set gillnet. Drift gillnet permits are the most numerous and are allowed in the Bering River, Copper River, Coghill, Unakwik and Eshamy Districts. Set gillnet gear is allowed only in the Eshamy District. Purse seine gear is allowed in the Eastern, Northern, Unakwik, Coghill, Northwestern, Southwestern, Montague and Southeastern Districts.

As an avenue for the commercial fishing industry to formally provide management recommendations to the department, representatives from area processing, gear groups, and aquaculture associations sit on an advisory body known as the PWS Salmon Harvest Task Force (SHTF).

Five herring fisheries occur during the year. Four of the herring fisheries occur in the spring; gillnet sac roe, purse seine sac roe, spawn-on-kelp not in pounds, and spawn-on-kelp in pounds. A herring food and bait fishery occurs in the fall. All of the herring fisheries are managed for a guideline harvest level established by the Prince William Sound Herring Management Plan, 5 AAC 27.365. The management objective for herring is to target fisheries on a high quality segment of the biomass.

OVERVIEW OF AREA WIDE FISHERIES

The 1994 Prince William Sound Area commercial salmon harvest of 40.6 million fish is the second highest on record (Appendix A.3). The harvest was comprised of 36.9 million pink, 1.5 million sockeye, 1.1 million chum, 1.1 million coho, and 49,000 chinook salmon. The majority of the catch, 29.5 million, was commercial fishery harvest and 11.1 million were sold for hatchery cost recovery (exclusive of roe sales) and department test fisheries.

The estimated value of the combined commercial salmon harvest is \$43.9 million, including hatchery sales (Appendix A.5). During the 1994 season, 510 drift gillnet permit holders fished. The drift gillnet catch is valued at \$20.4 million, setting the average earnings at \$39,990. The set gillnet catch is valued at \$777,770, setting the average earnings of the 26 permits at \$29,914. The seine fishery was worth \$13.3 million for an average ex-vessel value of \$78,032 for the 171 permit holders that participated this year. Revenue generated for hatchery operations, and test fisheries was approximately \$9.3 million (exclusive of roe sales). All herring fisheries were cancelled in 1994 due to low stock abundance.

1994 SEASON SUMMARY BY DISTRICT

COPPER RIVER DISTRICT

PRESEASON OUTLOOK AND HARVEST STRATEGY

The 1994 harvest forecast for the Copper River District was 34,600 chinook, 680,000 sockeye, and 308,000 coho salmon. The Gulkana Hatchery located north of Paxson Lake was expected to contribute 141,200 sockeye salmon to the commercial catch.

The early season management strategy in the Copper River District is based on actual harvest compared to anticipated harvest. The weekly anticipated harvest is a percentage of the forecasted harvest. The percentage is based on the average weekly catch from 1971 - 1993, not including strike years. This allows the most reliable method of evaluating early run strength prior to the installation of in-river sonar to estimate escapement. Two evenly spaced 24-hour periods per week are optimum; however, the fishing schedule is adjusted as the situation dictates. Effort, tides and environmental conditions also enter into the interpretation of the data. In late May, upriver escapement data from the Miles Lake sonar becomes available and together with harvest information they are the primary factors for management of the fishery. The salmon escapement goal for the upper Copper River is 516,000 salmon.

By mid-June aerial estimates of sockeye escapement in the Copper River Delta are evident and are also considered when scheduling periods. Due to the many spawning systems in the lower Copper River Delta, a weekly escapement index is compared to an anticipated weekly escapement index of selected sockeye systems. The escapement index goal for the Copper River Delta is 90,000 sockeye salmon.

Typically, coho management begins the second week of August. In the past, the strategy provided a single fishing period per week but of longer duration than is commonly used during the sockeye season.

As in the sockeye salmon fishery, escapement estimates for the early portion of the coho salmon return are not immediately available. The fleet is managed using catch and effort as indicators of run strength. Effort and harvest techniques have improved over time forcing adjustments to management strategy. The weekly fishing period was reduced from 72-hours to 48-hours in 1989. In 1992 and 1993, the early coho season weekly schedule was altered to two 24-hour periods per week.

The Salmon Harvest Task Force discussed coho management strategy during the winter of 1993-94. Drift gillnet representatives expressed concern for adequate escapement with two 24-hour periods versus one 48-hour period during the early portion of the coho run. Processors were concerned with fishing strategy as it related to the quality of the harvest. A consensus was not reached. The department decided to begin the season with one 48-hour period and, based on harvest rates and escapement, decide if a second weekly period was warranted. The escapement index goal for the Copper River Delta is 50,000 coho salmon.

SOCKEYE AND CHINOOK SALMON FISHERY

The sockeye salmon harvest was 1,152,220, 70 percent above the projected 680,000 (Appendices B.1, B.2 and B.3.). The harvest of 47,061 chinook salmon was 36 percent above the projected and 28 percent above the 10-year average of 37,000 chinook salmon. Escapement to the upper Copper River surpassed the minimum goal of 516,000 salmon for a total of 715,577 salmon. Escapement into the Copper River Delta systems was 78,370, 87 percent of the index goal.

The 1994 commercial season began on May 16 with a 24-hour period (Appendix B.4). The harvest was 18,818 sockeye salmon, 58 percent below the anticipated. The chinook salmon harvest of 12,920 was almost four times the anticipated (Appendices B.5 and B.6). With the sockeye harvest less than half the anticipated and the chinook salmon harvest four times the projected, the next period on May 20 was reduced to 12-hours. The harvest for the 12-hour period was 41,675 sockeye, 67 percent of the projected, while the chinook harvest of 6,696 was 60 percent above the projected. The indication from the first two periods was for a sockeye run close to the preseason projection, and a chinook salmon run well above the preseason projection.

ADF&G personnel operating the Miles Lake sonar were on site May 11, however the Copper River was still 80 percent ice covered and Miles Lake 100 percent ice covered. The Bendix side-scanning sonar was deployed on the south bank on May 17. The migration time from the commercial fishing district to the sonar site is estimated at seven to nine days. Initial escapement estimates were low with a first day count of 450 salmon (Appendices B.7 and B.8), however, escapement increased and remained within the daily anticipated through May 25.

During the week of May 22, two 24-hour periods occurred for a combined harvest of 190,673 sockeye and 10,561 chinook. The projected harvest for the week was 137,000 sockeye and 9,100 chinook salmon. After evaluating the increased harvest of sockeye salmon, the indication was for a sockeye salmon return larger than the preseason projection. Peak sockeye harvest for the Copper River District typically occurs during the last week of May and based on an expected strong run a 36-hour period was scheduled for May 30. The harvest from the 36-hour period was 102,901 sockeye and 5,492 chinook salmon.

Escapement past Miles Lake sonar began to lag the projected and by May 31, the cumulative sonar estimate of 36,300 salmon was 40 percent below the projected. This was not unexpected as the sockeye

harvests during the first few periods were low. With the increased commercial harvests during late May a similar increase was expected at Miles Lake by early June.

The next 24-hour period on June 2 harvested 106,555 sockeye and 3,564 chinook salmon. Daily escapement continued to trail the projected. During the week of June 5, a reduction in fishing time of two 12-hour periods was warranted. The combined harvest of sockeye for the two 12-hour periods was 72,000, which was slightly below the projected 82,000. Daily escapement at the sonar site increased on June 6.

The first aerial survey of the lower delta on June 6 sighted 1,000 sockeye salmon scattered throughout the indexed systems. The anticipated survey index was 3,200 sockeye salmon (Appendix B.9). The next survey on June 13 observed 5,450 sockeye with all but 100 sockeye in the Martin River system. Escapement was below in both the lower delta systems and past Miles Lake sonar, however daily escapement rates for the upper Copper were above projected therefore the typical fishing schedule of two 24-hour periods resumed during the week of June 12.

On June 20, only a modest increase was observed over the previous survey in the delta systems. An aerial survey on June 23, observed an increase of nearly two fold from the survey on June 20. With the increased delta escapement and Miles Lake sonar above projected, a 36-hour period was scheduled for June 27.

The increase in delta escapement was short lived. The next survey on June 28 observed only 64 percent of the anticipated. With the declining rate of escapement into the delta systems, the following four commercial fishing periods were limited to 24-hours.

While the delta systems remained below the anticipated, daily passage rates at the Miles Lake sonar were above the projected and by July 1 the cumulative escapement reached 440,700 salmon, 34 percent above the projected. On July 11, 60,000 sockeye salmon were observed through out the delta systems, 33 percent above the projected 45,500. With this push of sockeye into the delta systems fishing time was increased. Harvest rates of sockeye salmon continued to remain above the weekly projections throughout the remainder of the season.

Escapement of sockeye salmon into the lower delta systems was 78,370, 87 percent of the season's escapement index of 90,000 (Appendix B.10). Aerial surveys of sockeye salmon spawning systems above Miles Lake were not flown during 1994 due to a lack of funding (Appendix B.11). The aerial survey program for chinook salmon occurred and the aerial index was 3,119 which is slightly above the long term average escapement index of 3,000 (Appendix B.12). The weather pattern was similar to 1993, with low rainfall and warm temperature. At times, the river and lake systems were extremely low and impassable to sockeye trying to make it to the spawning systems.

COHO SALMON FISHERY

The coho salmon harvest of 677,633 was the largest on record and double the projected 308,000 (Appendix B.5). Escapement estimates of coho salmon into the Copper River Delta systems were hampered this season by heavy rains. The aerial survey estimate as of September 8 was 40 percent above projected.

Coho management began August 8 with a 48-hour period. The harvest was 35,039 coho salmon and the expected harvest for the week was 21,000 coho salmon based on past fishing patterns. With a higher than expected harvest the next fishing period was scheduled for August 15, a 48-hour period. The harvest during that period was 126,989 coho salmon, almost three times the projected 44,000 harvest. An aerial survey on August 16 estimated 3,200 coho distributed throughout the delta systems which was 16 percent below the anticipated index for the week ending August 20 (Appendix B.12). With catch nearly three times the projected and escapement within the projected range, a second weekly period of 12-hours was announced for August 19.

By August 19, the cumulative commercial catch of nearly 250,000 was approaching the preseason projection. The run was clearly larger than expected and possibly as large as the previous record of 580,000 coho established in 1985. During the 1985 run, one 86-hour fishing period per week allowed the escapement index to exceed 100,000 coho in the Copper River Delta. During the week of August 21, two 30-hour periods were planned with the possibility of an extension on the second period pending escapement surveys. The anticipated escapement index for the week ending August 27 was 15,550 coho salmon. A survey on Tuesday, August 16 observed 13,300 or 14 percent below the week's projected. A second survey was scheduled for Thursday, August 18, but was canceled due to poor weather. The harvest from Monday's 30-hour period was a strong 98,000 coho salmon. With no additional survey information, but evidence of a continued strong run, it was felt that escapement occurred through the 42-hour closure between periods. The second 30-hour period was extended 18 hours until noon Saturday, August 27. The cumulative harvest of coho salmon for the week ending August 27 was 157,550, two and one half times above the projected weekly harvest of 60,500.

An aerial survey on August 28 estimated 23,100 coho salmon, 22 percent above the projected for the week ending September 3. Based on the increase in escapement during the last week of August, the period during the first week of September was extended to 102-hours. The harvest from the 102-hour period was 110,288 coho salmon for a cumulative harvest of 520,000. The following week the fishing schedule was increased to 120-hours. The next escapement survey on September 8 observed 37,600 coho salmon, nearly 40 percent above the projected. With escapement occurring at that magnitude during a fishing schedule of over 100-hours per week and a decrease in the number of permit holders fishing, the Copper River District was opened until further notice from September 10 until the season closed on October 22.

BERING RIVER DISTRICT

PRESEASON OUTLOOK AND HARVEST STRATEGY

The 1994 harvest forecast for the Bering River District was 20,000 to 30,000 sockeye salmon and 123,500 coho salmon. The Bering River District sockeye fishery begins in mid-June almost one month after the Copper River District opens. The sockeye run timing has a very short span, and typically peaks during the third week of June. Commercial fishing periods in the Bering River District generally coincide with the Copper River District (Appendix B.26). Due to the condensed run timing of the Bering River sockeye stock, shortfalls or surpluses in escapement may occur in a given year. The Bering River District escapement index goal is 32,000 sockeye salmon.

The Bering River District, unlike the Copper River District, does not have a long historical catch database for sockeye salmon. Before 1985, most of the sockeye salmon harvested were on the south side of Kayak Island. The Alaska Board of Fisheries (BOF) closed this area to commercial fishing in 1986 due to the mixed stock nature of this fishery. All catch information before 1986 includes those waters closed by the BOF. When a sufficient time series is available with the post 1985 information, weekly anticipated catches for the Bering River District will be used.

The Bering River District coho salmon fishery is also managed concurrent with the Copper River District whenever possible. However, unlike Bering River sockeye salmon, assessment of coho salmon run strength prior to when aerial survey information is available, is based on weekly anticipated catch information from the past 13 years as compared to the actual catch. The south side of Kayak Island was not historically fished during the coho season. The Bering River District escapement index goal is 23,000 coho salmon.

SOCKEYE SALMON FISHERY

The sockeye salmon harvest of 27,926 was within the preseason projection (Appendix B.19). The observed escapement index for the Bering River system was 26,550 slightly less than the anticipated index.

The Bering River District opened on June 13 for 24-hours (Appendix B.20). The harvest from the first period was 3,190 sockeye salmon by 18 permit holders. The next scheduled period was on June 16 for 24-hours; 26 permit holders harvested 7,086 sockeye salmon. The 24-hour fishing period on June 20 harvested 5,820 sockeye salmon by 23 permit holders. Effort and catch were minimal after June 27.

Survey conditions were hampered this spring when Berg Lake dumped on May 31. Berg Lake is glacial water impounded by the Bering Glacier. It periodically cuts through Bering Glacier and floods the valley, the last break was in 1987. When Berg Lake dumps, all downstream systems are flooded with glacial water impeding visual observation of sockeye salmon. Water conditions favorable for aerial surveys did not occur until July 5 when 16,000 sockeye salmon were observed in Bering Lake. Management of the Bering River District for 1994 was based solely on catch estimates from each period.

COHO SALMON FISHERY

The coho salmon harvest of 259,003 was slightly more than two times the preseason projection and the second largest return. The observed escapement index for the Bering River system was 28,550, 24 percent above the index goal (Appendices B.22 and B.23).

Coho management began August 8, with a 48-hour period harvesting 697 coho salmon. The following 48-hour period on August 15 harvested 12,931 coho salmon. With catch rates in both the Copper and Bering River Districts more than twice the anticipated, a 48-hour and 12-hour period were allowed during the week of August 14. The weekly harvest was 21,965, ten times the anticipated. Based on the strong coho harvest it was evident that the coho return was going to exceed the preseason projection and additional fishing time was required. Two 30-hour periods were planned for the week of August 21. An aerial survey on Monday, August 22 observed almost 4,000 coho, 50 percent of the projected 7,500 for the week ending August 27. The next survey scheduled for Thursday, August 25 would determine

if an extension to the second 30-hour period would occur. Heavy rains on Thursday and Friday postponed the second survey. Based on the catch of 37,845 during Monday's period and a 42-hour closure after the period, the second weekly period was allowed and extended by 18-hours. The harvest of 79,151 coho for the week was over four times the projected.

An aerial survey on Sunday, August 28 estimated 8,550 coho salmon, 24 percent below the projected for the week ending September 3. Based on increasing escapement in the Copper River District during the past week's fishing schedule, and escapement in the Bering River/Controller Bay area slightly below, a 102-hour period was allowed the following week. The weekly harvest was 78,312 coho salmon for a cumulative harvest of 179,500. A survey on September 2 observed escapement at 45 percent above the projected. With the increase in escapement the following week's fishing schedule was set for 120-hours. A survey on September 8 observed 26,400 coho salmon, 24 percent above the 21,300 anticipated weekly goal. With escapement met in the Bering River/Controller Bay area the Bering River District was opened until further notice from September 10 until the season closed on October 22.

COGHILL DISTRICT (prior to July 21)

PRESEASON OUTLOOK AND HARVEST STRATEGY

Prior to July 21, drift gillnet is the only gear type in the Coghill District. The management strategy prior to July 21 is based primarily upon the return of sockeye salmon to Coghill Lake and the return of chum salmon to the Noerenberg Hatchery. Coghill sockeye are managed for an escapement goal of 25,000 whereas hatchery chum are managed to satisfy the allocation between the common property fishery and PWSAC's corporate escapement as determined by the Noerenberg Hatchery Annual Management Plan. A small run of hatchery chinook salmon is incidental to the hatchery chum run.

The Coghill Lake sockeye forecast was 53,260 fish. The forecast included 34,490 sockeye of wild stock origin and 18,770 from remote releases by PWSAC. Sockeye were reared at the Main Bay hatchery and released as smolt (F₁ generation) near the mouth of the Coghill River.

The Noerenberg Hatchery early chum forecast was 1,135,100 fish. PWSAC was slated to harvest 40 percent of the returning hatchery chum. In addition to the 40 percent harvest, a portion of the chum return would be taken for operating expense of the Gulkana Hatchery. Based on run timing and the sockeye and chum salmon forecasts, the Esther Subdistrict of the Coghill District was scheduled to open June 13, for two 24-hour fishing periods per week. To help alleviate congestion openings would coincide with periods in other drift gillnet districts.

If wild stock escapement was weak, the Board of Fisheries at their February 1994 meeting endorsed the use of a reduced subdistrict defined as one nautical mile off the southern portion of Esther Island. The one nautical mile subdistrict would be implemented by emergency order for the conservation of Coghill Lake sockeye or Port Wells chum and pink salmon. The department also designed a test fishery for the Esther Subdistrict to determine more appropriate boundaries.

SEASON SUMMARY

The commercial harvest of early chum salmon was 912,789 fish. The common property harvest was 553,750 and the hatchery sold 359,039 salmon. The hatchery chum salmon brood stock goal was achieved. Escapement at Coghill Lake was 7,264, however, the goal was 25,000 sockeye. During the chum salmon fishery 8,746 sockeye were harvested in the Esther Subdistrict. Detected coded wire tags indicate that both Main Bay Hatchery and remote released sockeye were present in the Subdistrict. The chinook harvest by the common property fishery and PWSAC was 1,225. The chinook salmon brood stock goal was not achieved, however, no directed management action was taken for chinook salmon. All commercial harvests were confined to the Esther Subdistrict of the Coghill District.

PWSAC began sales harvesting on June 3. The Esther Subdistrict opened to the common property fishery for 24-hour periods on June 13 & 16 to target hatchery chum salmon. The Noerenberg Hatchery Special Harvest Area remained closed, however the Terminal Harvest Area was open. To help maintain fish quality, lower Esther Passage was opened up to Shoestring Cove.

After the first two 24-hour periods, the third period on June 20 was shortened to 12-hours with the Terminal Harvest Area closed to increase corporate escapement. The period scheduled for June 23 was cancelled due to low sockeye escapement at Coghill Lake and the desire to increase PWSAC sales harvests that were about 10 percent below expected. The common property fishery resumed for 12-hours on June 27. By July 1, only 46 sockeye had escaped to Coghill Lake, however approximately 20 percent of the escapement goal should have occurred by this time. The periods on July 1 and 4 were shortened to 6-hours, however additional time was allowed in the Terminal Harvest Area and the waters of Esther Bay. Shallow gillnet gear was retained by emergency order after the first Monday in July to reduce interception of sockeye.

After the period on July 4 all subsequent harvests were confined to either the Special Harvest Area, the Terminal Harvest Area or Esther Bay to help eliminate Coghill sockeye interception. Twice weekly periods continued in this confined area through July 26 when management priority shifted to pink salmon.

The Coghill District was closed from July 26 until August 9. On August 9 the directed pink salmon fishery began. Further discussion of this portion of the fishing season is provided in the section pertaining to the *General Purse Seine Districts*.

The Coghill weir was operational from June 10 until September 5, a month longer than normal. The mid point of escapement usually occurs in early July and tails off in late July. This year the midpoint of the escapement was August 10. Aerial surveys indicated a buildup of sockeye salmon near the remote release site in mid July. These fish were periodically sighted until mid-August. As a result of the weak escapement the PWSAC remote egg take at Coghill Lake was modified. PWSAC was allowed to take milt from 198 male sockeye salmon at Coghill Lake for fertilization of F₂ generation Coghill stock females at the Main Bay Hatchery.

The Esther Subdistrict test fishery occurred on June 19 and July 3. Initial plans called for four sampling periods, however due to the paucity of escapement at Coghill Lake and the small number of sockeye captured the project was abandoned after July 3.

UNAKWIK DISTRICT

PRESEASON OUTLOOK AND HARVEST STRATEGY

The Unakwik District is the smallest in the management area. Both drift gillnet and purse seine are allowed during all commercial fishing periods. This district was established for management of relatively small sockeye runs to Miners and Cowpen Lakes. Escapement enumeration into both lakes is via aerial survey, however water clarity is poor thus escapement indices are considered qualitative at best. A major pink salmon hatchery borders the southern boundary of the district.

Historically this district was managed concurrently with the Coghill District, as the commercial catch from both areas cycled in a similar fashion. Since 1991 the department has managed the Unakwik District on a schedule of two 24-hour periods per week coinciding with other gillnet openings.

SEASON SUMMARY

The 1994 harvest was 389,202 pink and 774 sockeye salmon with minor amounts of chum and coho. The sockeye harvest was substantially below the 10-year average harvest of 13,132.

The Unakwik District opened on June 20, to a schedule of two 24-hour periods per week to target sockeye salmon. No changes were made to the fishing schedule until July 22 when the district was closed. Sockeye harvest peaked during the first week of July. The peak aerial survey estimate for Miners Lake was 2,000 sockeye and for Cowpen Lake 200 sockeye salmon. The district reopened on August 9 to harvest pink salmon returning to the Cannery Creek Hatchery. When large returns occur at the Cannery Creek Hatchery, pink salmon build up on the north side of the reef in Unakwik Inlet. The season closed on September 30, although no landings occurred after August.

ESHAMY DISTRICT

PRESEASON OUTLOOK AND HARVEST STRATEGY

At the February Board of Fisheries meeting, several regulations were enacted which affected commercial fishing in the Eshamy District. Both set and drift gillnets are allowed in this district. In an effort to reduce gear conflicts, the minimum distance between set and drift gillnets was changed from 50 to 60 fathoms in the Crafton Island Subdistrict. In addition, the 500 yard anadromous stream closure in the Main Bay Subdistrict was rescinded prior to July 8 to allow the harvest of early sockeye returns to the Main Bay Hatchery. Drift gillnets were required to remain 50 fathoms from the barrier seine, an action that effectively closed the Alternating Gear Zone (AGZ) at the head of Main Bay as set gillnets were already required to remain 50 fathoms from the barrier seine. The Board also increased the minimum mesh size which could be required from 5 1/4 to 5 3/8 inches to help protect pink salmon.

Beginning in mid-June, the management strategy is based primarily upon the Coghill-stock sockeye salmon run to the Main Bay Hatchery. In July, management focuses on the Eshamy-stock sockeye salmon

run to the Main Bay hatchery and the Eshamy-stock sockeye salmon run to Eshamy Lake. The Eshamy Lake sockeye run is managed for an escapement goal of 35,000 sockeye, plus additional sockeye to allow PWSAC to utilize the site for a remote egg take. Presently, adult sockeye returns from wild stock, lake planted presmolt, and remote released smolt contribute to escapement at Eshamy Lake. The Eshamy District also supports wild pink salmon stocks. The District's commercial harvest includes salmon from these local stocks as well as from stocks (both wild and hatchery) outside the district.

The forecasted return of sockeye salmon to Main Bay Hatchery was 330,700 fish composed of 76 percent Coghill-stock and 24 percent Eshamy-stock. A small return of 5,000 Eyak-stock sockeye salmon was also anticipated. The Eshamy Lake sockeye salmon forecast was 168,300 fish composed of 54 percent remote release sockeye from the Main Bay hatchery and 46 percent wild stock sockeye (including stocked presmolt). Remote release sockeye (F_1 generation) are reared at the Main Bay Hatchery and have been released as smolt near the mouth of the Eshamy River since 1991.

Based on run timing, the Eshamy District was scheduled to open June 17, for two 36-hour fishing periods per week coinciding with other gillnet districts. Adjustments to the weekly schedule would occur depending upon corporate escapement at the Main Bay Hatchery and consideration of wild stock escapement.

There is an overlap in run timing between the Coghill and Eshamy stock sockeye returns to the Main Bay Hatchery. Management for harvest allocation objectives of hatchery sockeye was scheduled to change from Coghill-stock to Eshamy-stock on July 21. Although the Coghill stock is not complete, approximately 10 percent of the Eshamy stock should have arrived by this date. PWSAC was slated to harvest 40 percent of the hatchery produced Eshamy and Coghill-stock sockeye as determined by the Main Bay Hatchery Annual Management Plan. Due to the low return anticipated for Eyak-stock sockeye, that return would be managed for corporate escapement only. Coghill-stock sockeye were returning to Coghill Lake (remote release) and to the Main Bay Hatchery. Eshamy-stock sockeye were returning to Eshamy Lake (remote release) and to the Main Bay Hatchery. To distinguish wild from hatchery produced sockeye and provide PWSAC with the stated corporate escapement goal, inseason coded wire tag estimates of the commercial harvest would be used.

SEASON SUMMARY

The common property harvest of sockeye salmon from all stocks was 159,512, well below the preseason forecast of 325,000. PWSAC's Main Bay hatchery sales harvest of 79,131 sockeye was also below their anticipated harvest of 127,500. In addition to the common property harvest of sockeye salmon, 565,669 pink salmon and 16,405 chum salmon were harvested in the Main Bay Subdistrict. Set gillnet permit holders harvested 61 percent of the common property sockeye salmon, 55 percent of the pink salmon and 42 percent of the chum salmon with the remainder being harvested by the drift gillnet fleet. PWSAC's Main Bay cost recovery harvest included an additional 213,270 pink salmon. The hatchery brood stock goals of 4,600 for the Coghill-stock and 3,100 for the Eshamy-stock were achieved.

Low sockeye salmon returns to Main Bay Hatchery delayed the start of PWSAC's cost recovery harvest of Coghill-stock sockeye salmon until June 19. Continuing poor returns to both Main Bay and to Coghill Lake delayed the first common property harvest until July 7 when the Main Bay Subdistrict was opened for 24-hours. At that time, the total return of Coghill stock sockeye salmon to Main Bay stood at 13,743, well below the anticipated return to date of 51,781. The Coghill Weir cumulative escapement on July 7

was 167, whereas the anticipated escapement by that date was 12,904. The harvest for the first opener was 3,004 sockeye and 1,815 chum salmon. Twice weekly periods in the Main Bay Subdistrict continued through July 23 however the harvest of sockeye continued to remain well below preseason expectations. Fishing was confined to the Main Bay Subdistrict the entire season due to wild stock concerns and therefore no minimum mesh size restrictions were implemented. Shallow gear gillnet restrictions for the Eshamy, Coghill and Unakwik Districts were rescinded effective July 25.

Beginning July 24 management for corporate escapement of sockeye in the Eshamy District changed from the Main Bay Coghill-stock to the Main Bay Eshamy-stock. From July 24 until July 28 the Eshamy District was closed to common property fishing to allow PWSAC to collect corporate escapement for the Eshamy-stock component. The Main Bay Subdistrict reopened on July 28 and remained open for two periods a week until September 5 at which time the Main Bay Subdistrict was opened continuously. Corporate escapement for Main Bay's Coghill and Eshamy stocks of sockeye salmon were 47 percent and 35 percent respectively. The entire Eshamy District closed for the season on October 7.

Pink salmon from PWSAC's cost recovery harvest, excluding their roe sales, accounted for 27 percent of the district's commercial pink salmon harvest. In August, the abundance of pink salmon in the Main Bay Subdistrict and soft market conditions complicated PWSAC's ability to harvest and sell enough sockeye salmon to maintain their 40 percent corporate escapement. Limited tender capacity in the Eshamy District prevented the common property fleet from fully utilizing their harvest of both sockeye and pink salmon. As a result, quantities of the lower valued pink salmon were discarded by the common property fleet to preserve their market for sockeye salmon.

Aerial surveys and Eshamy weir data revealed that a significant portion of the Main Bay Eshamy-stock remote-release return entered the district between mid-September and mid-October, a month later than normal. By this time, buyers had ceased operating in the district and only a single set gillnetter continued to fish in the district, delivering fish to tenders still operating in the Esther Subdistrict. These late returning sockeye salmon had darkened prior to entering the district and were not considered desirable by the processor. After September 17 no further harvest of salmon occurred in the district.

Escapement at Eshamy Lake was 64,660 whereas the goal was 35,000 - 40,000 sockeye. The Eshamy weir was installed on July 6. The first sockeye salmon were passed on July 12. Escapement past the weir remained far below the anticipated during the entire commercial fishing season. Beginning in late July, a concentration of approximately 4,000 to 6,000 sockeye and pink salmon were observed congregating near the mouth of the river. However, migrations upstream were limited (probably due to elevated water temperatures and low flow conditions). Finally on September 14, coinciding with increased precipitation and a decrease in stream temperatures, 2,800 sockeye migrated past the weir. Until that date, only 4,600 out of an anticipated 38,600 had passed the weir. Over the next four weeks 60,000 sockeye passed the weir, the majority between September 14 and October 6. Normally, the Eshamy weir is removed and the camp is closed the first week in September coinciding with the end of the sockeye salmon run. Because of the continuing presence of sockeye salmon in the lagoon, the weir was kept in place until October 18. Heads from all adipose clipped salmon were removed to recover coded wire tags. This tag information will be used to evaluate the contributions to the escapement from different release groups of hatchery reared sockeye salmon and wild returns to Eshamy Lake. Achievement of the escapement goal allowed PWSAC to continue to take eggs from Eshamy Lake. In addition to the delayed timing of the 1994 return, thousands of sockeye salmon were observed spawning in small intertidal streams throughout the Eshamy District in September and October. The weir crew at Eshamy Camp surveyed these streams and recovered heads from tagged salmon to further investigate the origin of these fish.

The sockeye program at the Main Bay Hatchery has greatly increased effort in the Eshamy District over historic levels. However, in 1994 the low return of sockeye salmon to Eshamy District, coinciding with strong returns of sockeye salmon to the Copper River and chum salmon to W.H. Noerenberg Hatchery, reduced the overall effort in the district. Approximately 102 gillnet permits fished in the district in 1994, compared with 150 in 1993, and 350 in 1992. Even with this reduced number of vessels operating in the Main Bay Subdistrict, friction continues to develop between gear types in certain areas as they vie for preferred sets, especially at the beginning of fishing periods when sockeye are schooled near the beach. The newly enacted regulation regarding minimum spacing between gear groups will eliminate some of the ambiguity which existed in regulation previously. Generally, many participants in the common property fishery remain critical of the crowded conditions created by terminal area fisheries.

GENERAL PURSE SEINE DISTRICTS

PRESEASON OUTLOOK AND HARVEST STRATEGY

The general purse seine districts include the Eastern, Northern, Coghill, Northwestern, Southwestern, Montague and Southeastern Districts. The Prince William Sound Management and Salmon Enhancement Allocation Plan closes the Southwestern District prior to July 18. The plan also closes the Coghill District to purse seine gear prior to July 21. Beginning July 21, both purse seine and drift gillnet are allowed. From August 25 through September 4, seine gear is restricted to the Noerenberg Hatchery Terminal Harvest Area. Beginning September 5, seine gear may only be operated in this area if the harvestable surplus is predominately pink salmon. Fishing is allowed in all other districts by emergency order.

The general purse seine districts are managed to achieve wild pink and chum salmon escapement goals by district and allow for the orderly harvest of surplus wild and hatchery stocks. Escapement of pink and chum salmon is tracked through the season by weekly aerial surveys of 209 index streams. Management to achieve hatchery corporate escapement goals is accomplished by opening and closing subdistricts near the hatcheries. Subdistricts are also utilized to target the fleet on hatchery stocks when wild salmon escapement is weak.

Valdez Fisheries Development Association (VFDA) has a stock of pink salmon that peaks in early July, a small run of chum salmon during August and a run of coho salmon that begins in mid-August. The consequence of similar return timing of VFDA chum and coho salmon necessitates managing for one species. VFDA requested the department to manage for chum salmon and treat coho salmon as incidental. All VFDA returns are to the Solomon Gulch Hatchery in Port Valdez.

Prince William Sound Aquaculture Corporation (PWSAC) has pink salmon stocks that peak in mid-August. PWSAC pink salmon return to the Cannery Creek, Noerenberg and A.F. Koernig Hatcheries. A moderate run of coho salmon is incidental to the late pink salmon fishery at the Noerenberg Hatchery.

The outlook for the general purse seine fishery was a total return of 26.7 million pink salmon composed of 24.7 million hatchery (79% PWSAC, 21% VFDA) and 2.0 million wild stock pink salmon. The anticipated common property fishery harvest was 15.3 million with 11.4 million slated for corporate escapement and wild stock escapement. The wild stock chum salmon forecast was 277 thousand salmon

with an escapement goal of 225 thousand. A processing capacity survey disclosed a daily rate of 3.5 million pounds. The daily processing rate was 4 million pounds in 1991.

The PWS Salmon Harvest Task Force (SHTF) met prior to the season. Seine representatives on the task force standardized fishing sites for the Southwestern District test fishery. With the loss of the supplemental aerial survey program, the test fishery was expected to play a key role in providing information on PWSAC run entry. There were no official recommendations developed for the seine fishery.

VFDA's original revenue goal was \$2.5 million. The task force debated the revenue goal and VFDA offered a compromise of \$2.37 million. Seine and processor representatives on the task force wanted the VFDA pink return managed on a fixed harvest percentage so that risk would be shared between the industry and the hatchery. A compromise was not reached and the department decided to manage for a revenue goal of \$2.37 million.

The corporate escapement rate for the PWSAC pink salmon return was 40 percent. Site specific corporate escapement could fall above or below 40 percent at a site as all three sites would be managed collectively. To distinguish wild from hatchery pink salmon, inseason coded wire tag estimates of the commercial harvest would be used.

SEASON SUMMARY

The pink salmon escapement goal was achieved in the Eastern, Northern, Northwestern, Southwestern and Southeastern Districts. The Coghill District was approximately 50 percent below the goal, and the Montague District 20 percent below the goal. The only district to achieve the chum salmon escapement goal was the Northwestern District. All other districts were at least 50 percent below the goal.

The climate was unusually warm and dry. During July and August reduced precipitation caused some streams to dry up, other streams had greatly decreased flows. Water temperature elevated and oxygen concentration declined. Pink salmon were observed dead prior to spawning at several locations due to these conditions. Salmon entry to fresh water was also delayed in some locations. At the Cannery Creek Hatchery, 70,000 pink salmon brood stock perished in the creek. In late August, milling salmon were observed from Chenega Island to Culross Island. These salmon appeared confused and did not seem to home properly. It is unknown if they were hatchery or wild salmon.

VFDA began corporate escapement harvesting on June 20 at the Solomon Gulch Hatchery. Initial harvests were good and sales tracked above the revenue curve. With 17 percent of the revenue goal acquired, the first seine fishery was on June 30 in the western half of Port Valdez. The harvest was 238,000 pink salmon by 48 boats. Sales harvests indicated strength in the run and the next period was for 36-hours on July 3 and 4. The opening included all of Port Valdez and the harvest was a respectable 1.24 million pink salmon. With 50 percent of the revenue goal achieved by July 6, 15-hour periods were scheduled for July 8, 10 and 13. Harvests ranged from 1.2 to 1.4 million pink salmon each period. The VFDA pink return peaked about July 10, which is several days later than normal for an even year return.

To boost cost recovery the fishery did not open until July 17. During the closure, VFDA reached 93 percent of the revenue goal. After the three day closure, the harvest area was expanded to include Valdez

Arm and the Northern District, east of Granite Point. The harvest of 2.6 million pink salmon was the season's largest one day seine catch. Processors were plugged and some refrigerated sea water (RSW) vessels waited until the next day to deliver. Due to the backlog in processing the next period was on July 20, and the catch declined to 1.6 million fish.

The Solomon Gulch Hatchery Special Harvest Area, by regulation, includes the eastern half of Port Valdez through July 4. However, VFDA was allowed to harvest in this area through July 7. Beginning July 8, the special harvest area was defined as waters within 1,000 yards of the Solomon Gulch Hatchery. Early run brood stock were held in net pens and VFDA received permission to discard carcasses after roe was salvaged from unmarketable salmon.

On July 25, due to the record VFDA run, pink salmon were still available in Port Valdez and the PWSAC run was beginning. To obtain information on early PWSAC run entry, the Point Elrington Subdistrict opened on July 25. The harvest was 190,000 pink salmon and in Valdez Arm/Port Valdez 540,000 pink salmon were taken.

The seine test fishery began in the Southwestern District on July 26 and continued until July 31. The average catch boat/hour on July 26 was 4,371 pink salmon. Up to four vessels were utilized per day for a total of 12 test sets in nine key areas of the Southwestern District. The highest daily average occurred on July 31 when 6,133 pink salmon boat/hour were caught (2,044 pink salmon for a 20 minute set). During 1993 the highest daily average was on August 1, when 2,437 pink salmon boat/hour were caught. In addition to the test fishery, aerial surveys were conducted of migration corridors to help assess the PWSAC return.

PWSAC began collecting pink salmon for corporate escapement on July 22 at the A.F. Koernig Hatchery, July 23 at the Noerenberg Hatchery, and July 28 at the Cannery Creek Hatchery.

Harvests directed at wild stocks and VFDA pink salmon continued in Valdez Arm and along the north shore on July 30. An opening was also allowed in the southern portion of the Southwestern District to gain information on PWSAC run entry. With 70 percent of the boats fishing in the Southwestern District, the harvest was 0.7 million pink salmon compared to 0.5 million in the Northern/Eastern Districts. On July 31, with an indication of a buildup of pink salmon in Unakwik Inlet, the department expanded the Cannery Creek Hatchery Special Harvest Area. On August 1, the commercial fishery on the north shore harvested 1 million pink salmon and in the Point Elrington Subdistrict 0.5 million. On August 3, the harvest was greatest in the southern portion of the Southwestern District with a catch of 1 million, and on the north shore/Valdez Arm area 285,000.

At this point in the season PWSAC was at 18 percent corporate escapement, far below the goal of 40 percent. Corporate escapement was not increasing even with an expanded special harvest area in Unakwik Inlet, the Port San Juan and Point Elrington Subdistricts closed and no fishing at the Noerenberg Hatchery. After the next period on August 5, the fishery closed to help put PWSAC back on track. Due to limited harvesting capacity by hatchery contract seiners, PWSAC relied on the commercial fleet to help catch corporate escapement. Two million pink salmon were required to put PWSAC back on track and their special harvest areas were expanded to include the Port San Juan Subdistrict, waters within one nautical mile of Esther Island and waters of Unakwik Inlet. The common property fishery was initially closed for two days, however due to low participation from the fleet an extra day was necessary. The effort resulted in the harvest of 1.9 million pink salmon.

The common property fishery resumed on August 9, on the north shore and waters within one nautical mile of Esther Island. The harvest was 2.2 million pink salmon. Harvesting continued along the north shore and in the Esther Subdistrict on an every other day schedule until August 25. This schedule worked well for processors and for allocation between the CPF and PWSAC. The Cannery Creek Hatchery had the largest PWSAC pink salmon return followed by Noerenberg. The A.F. Koernig Hatchery return was weak. In general, where hatchery performance was good, wild stock mirrored hatchery performance.

During the last week of August major processors quit buying pink salmon. The last common property seine harvest was on September 4 although openings continued into late September. PWSAC received permission to discard carcasses after roe was salvaged from unmarketable salmon caught in their special harvest areas.

The Esther Subdistrict became a drift gillnet area on August 25, however purse seines could operate in the Noerenberg Hatchery Terminal Harvest Area from August 25 until September 6. Gillnets continued to operate within one nautical mile of Esther Island until October 7.

The coho harvest in the Esther Subdistrict was 90,826 salmon (81,396 common property fishery and 9,430 hatchery sales). The coho salmon brood stock goal was achieved.

VFDA chum salmon brood stock acquisition was below anticipated throughout August. On September 8, VFDA notified the department to forgo management of chum brood stock and take advantage of surplus coho. The VFDA Special Harvest Area opened to the commercial common property fishery on September 10 and was open on a weekly schedule for the remainder of September, however, only 4,600 coho were harvested. The VFDA coho salmon egg take goal was reached, however, less than 10 percent of the chum salmon egg take goal was achieved.

The common property fishery (CPF) harvested 26.3 million pink salmon for the entire season from all districts. Approximately 45 percent of the pink salmon harvest was taken in the Eastern District, 25 percent in the Northern District, 13 percent in the Esther Subdistrict, and 13 percent in the Southwestern District. The CPF accounted for 72% of all pink salmon sales. The average weight of pink salmon was approximately 3.1 pounds. Processors reported a good quality pack.

Revenue from fish sales for both VFDA and PWSAC was at or above preseason revenue projections. The 1994 commercial pink salmon harvest of 36.9 million is the third largest in Prince William Sound. The total pink salmon return including commercial harvest, roe stripped, hatchery brood and wild stock escapement is estimated at 39.5 million.

1994 PRINCE WILLIAM SOUND AND COPPER RIVER SUBSISTENCE FISHERIES

Subsistence and personal use harvests continue to be minor by comparison to the commercial salmon harvest in the Prince William Sound management area. The largest subsistence and personal use fisheries occur on the upper Copper River, upstream of the regulatory markers above Haley Creek to Slana River. In Prince William Sound and the Copper and Bering River Districts commercial fishermen may withhold a portion of their commercial catch for home use. Prior to the 1994 BOF meeting this "home use" was

unreported. The BOF placed into regulation the requirement that all chinook salmon harvested but not sold (home use) in the Copper and Bering River Districts be reported on a fish ticket as not sold/personal use.

The only personal use fishery occurs on the upper Copper River in the Chitina Subdistrict. All remaining waters of the Prince William Sound Management area are closed to the personal use taking of finfish. Subsistence fishing permits are issued from the Cordova office for the Copper River Delta, Prince William Sound, Southwestern and Eastern areas. Harvests are provided for these areas in Appendix G.1.

PRINCE WILLIAM SOUND AREA SUBSISTENCE FISHERIES

PRINCE WILLIAM SOUND AND LOWER COPPER RIVER FISHERIES

Permits issued at the Cordova office allow subsistence users to fish open commercial periods in Prince William Sound and the Copper and Bering River Districts. In 1994, 5 permits were issued for Prince William Sound, however, only two permits fished and both were unsuccessful (Appendix G.2).

For the Copper and Bering River Districts 101 permits were issued. Of the permits returned only 60 permit holders fished. The reported catch was 164 chinook, 474 sockeye, 67 coho and 3 other species (Appendix G.3).

EASTERN AND SOUTHWESTERN PRINCE WILLIAM SOUND FISHERIES

The Southwestern and Eastern subsistence permit program began in 1988. Residents of both Chenega Bay and Tatitlek are eligible for subsistence use permits in their respective area. In 1991, a court ruling qualified all residents of Alaska for a subsistence permit in the Eastern or Southwestern areas. Permit holders are allowed to fish in their respective areas from May 15 until two days before the commercial fishery opens in the permitted area; during all commercial fishing periods in the permitted area; and from two days after the commercial fishing seasons closes until September 30 in Southwestern and October 31 in the Eastern area for seven days a week.

In the Southwestern area, 16 permits were issued, mainly to residents of Chenega Bay village. Only 8 permit holders fished for a total catch of 192 sockeye salmon, 402 pink salmon, 161 chum salmon, 77 coho salmon and 5 chinook salmon (Appendix G.4).

In the Eastern area, 4 of the 14 permits issued were fished in 1994 for a total catch of 50 sockeye salmon, 143 coho salmon, 70 chum salmon and 50 pink salmon.

UPPER COPPER RIVER SUBSISTENCE AND PERSONAL USE FISHERIES

SUBSISTENCE FISHERY

The 1994 Copper River salmon return was anticipated to allow unrestricted fishing for the subsistence fish wheel and dip net fishery. During the 1991 Board of Fisheries meeting, subsistence harvest was increased from 25,000 to 35,000 salmon with the fish wheel and dip net fishery opening June 1 to seven day per week fishing. A total of 267 dip net and 703 fish wheel permits were issued with a preliminary harvest of 62,679 salmon. The estimated total (reported and unreported) salmon harvest was 68,838 (Appendix G.5).

BATZULNETAS SUBSISTENCE FISHERY

The Batzulnetas subsistence fishery began in 1985 when Katie John filed a civil suit in the United States Court (A85-698 Civil) which asked that the residents of Dot Lake and Mentasta be allowed to subsistence fish with fish wheels, dip nets, and spears in the closed waters of the Copper River and Tanada Creek which were traditional waters of the old Batzulnetas village site. In 1987, an interim subsistence fishery was provided for by Emergency Regulation (ER) at Batzulnetas to achieve settlement in the United States District Court. The "ER" established the boundaries; near the mouth of and within Tanada Creek near the historical village site of Batzulnetas. Fishwheels were allowed in the Copper River and spears in Tanada Creek. The quota was 1,000 sockeye and the open periods were two days per week in June and 3.5 days per week in July and August. Eight permits were issued to individuals or family groups from Mentasta or Dot Lake and the fishery was conducted during July and early August. A total of 22 sockeye salmon was reported in 1987. The Board of Fisheries reviewed the fishery prior to the 1988 season and set seasons, eliminated the quota, allowed each household of one 30 sockeye salmon, 60 for a household of two and 10 additional salmon for each additional member. Upon request, additional fish would be permitted. In 1988, an emergency order opened the same waters as in 1987 (traditional waters) for 48-hours per week from June 17 till the end of June and for 84-hours per week for the months of July and August. No permits were issued and no salmon was reported harvested during the 1988 season.

In 1989, another civil suit was filed by John, Charles and the Menetasta Village Council for an injunction against the State requesting continuous fishing at Batzulnetas. The United States District Court of Alaska ruled in favor of John and ordered a continuous fishery with a quota of 1,000 sockeye salmon. No permits were issued and no reported harvest occurred. The fishery opened from 8:00 a.m. Friday, June 23 until 12:00 midnight September 1. In 1990, another injunction was filed to allow the use of gillnets along with continuous fishing. The U.S. District court ruled in favor of continuous fishing through September 1, or until 1,000 sockeye salmon were harvested, but denied the use of gillnets. No permits were issued and no report of harvest. During 1991 and 1992 no permits were issued and there was no harvest reported. In 1993, one permit was issued and the harvest was 160 sockeye salmon. The fishery was open for a weekly 84-hour period from July 15 to September 1.

In 1994, an injunction was filed by John et. al on June 3 in the United States District Court of Alaska to allow for continuous fishing in the Batzulnetas area from June 25 through September 1. The court denied the injunction on June 22, 1994. The subsistence fishery opened for a 48-hour period per week in June and an 84-hour period per week from July 1 to September 1. Four permits were issued for a total harvest of 997 sockeye salmon.

PERSONAL USE FISHERY

The personal use fishery in the Chitina Subdistrict opened during the first weekend in June (June 4) for 54-hours and opened to continuous fishing June 21 until the season closed on September 30. The Personal Use fishery is restricted to a 60,000 seasonal salmon harvest, plus 25 percent of the escapement past Miles Lake sonar which exceed the 516,000 salmon objective. Fishing time may be reduced when actual harvest rates exceed the expected. An extensive public information effort was continued by the department incorporating frequent news releases and dedicated phone lines with recorded messages in Glennallen, Fairbanks and Anchorage.

A total of 7,305 dip net permits were issued in 1994, representing a decrease from the record 7,914 permits issued in 1993. The reported harvest for the season was 90,130 sockeye, 3,581 chinook and 1,903 coho salmon. The estimated total (reported and unreported) salmon harvest was 101,755. The combined upper Copper River personal use and subsistence fisheries estimated catch of 170,593 fish ranks as the largest harvest on record.

1994 PRINCE WILLIAM SOUND HERRING FISHERIES

PRESEASON OUTLOOK AND HARVEST STRATEGY

There are five herring fisheries in the management area. During the spring, two fisheries target herring for sac roe using either seine or gillnet gear. Two spawn-on-kelp fisheries harvest either naturally occurring spawn on kelp or spawn on kelp produced by impounding herring and kelp. A food-and-bait fishery occurs in the fall. The wild spawn on kelp and food-and-bait fisheries are open entry.

At the February 1994 Board of Fisheries meeting the herring threshold was increased. The board adopted the staff's proposal to raise the biomass threshold from 8,400 tons to 22,000 tons. The board also repealed the herring districts.

In the spawn-on-kelp fisheries, a complex set of regulations was adopted for the spawn-on-kelp pound fishery. The most notable changes were the allowance of four permit holders in a single pound, a maximum pound dimension, and the allowance of open or closed pounds. In the wild spawn-on-kelp pound fishery, the notable changes were the allowance of harvesting the entire fucus or hair kelp plant and requiring documentation for discarded wild kelp on fish tickets.

For management purposes, all herring fisheries target on what is treated as a single major stock of herring that spawns in PWS during the mid-April to early May period. The Prince William Sound Herring Management Plan, 5 AAC 27.365, allocates the projected available surplus to the five fisheries based on a 0 to 20 percent harvest rate when stock size is between 22,000 and 42,500 tons, and the maximum harvest rate of 20 percent is applied when stock size is greater than 42,500 tons. The sac roe seine fishery is allocated 58.1 percent of the available surplus; the food and bait fishery 16.3 percent; the pound spawn-on-kelp fishery 14.2 percent; the wild spawn-on-kelp fishery 8.0 percent and the gillnet sac roe fishery 3.4 percent.

The projected 1994 spawning biomass was 30,000 tons. The forecast predicted a predominance of age-6 fish from the 1988 year class. The exploitation rate for the 1993-94 management year was set at 15 percent. Allocation by fishery was; seine sac roe 2,615 tons, gillnet sac roe 153 tons, 639 tons of pound spawn-on-kelp biomass, and 360 tons of wild spawn-on-kelp biomass.

1994 SEASON SUMMARY

Aerial surveys were conducted from March 30 until April 30. A summary of the spawning areas and timing of spawn are shown in Appendix H.1. The peak aerial biomass estimate was 19,647 tons, the lowest since 1986. The estimate by area was Orca Bay 330 tons; Tatitlek area 117 tons; and Montague Island 19,200 tons. No harvests were allowed based on inseason assessment that the stock was below threshold and poorly distributed in the Sound. In addition to the stock being below threshold the age structure indicated a stock becoming senescent. Based on these reasons, all four spring herring fisheries were cancelled.

There is imprecision in aerial biomass estimates in some locations of Prince William Sound because at times not all herring are visible from the air. The R/V Montague conducted sonar surveys at Montague Island beginning on April 5. A scanning sonar was used to search for biomass and a sounder for qualitative assessment of density and thickness. Herring schools were mapped and area estimated. Herring sighted by sonar were compared to aerial observations. This technique was useful to improve aerial estimates and help determine if additional herring were moving onto the grounds.

The herring spawning population was dominated by the 1988 year class, as expected. Age composition indicated over half the stock was age-6 and older. There were very few age-5 herring and age-4 comprised approximately 20 percent by number. Although three year old herring are not fully recruited to the sampling gear there was no indication of strength from that cohort. The majority of the spawning biomass during the next two years will likely be the 1988 brood year. The mortality rate of the 1988 brood year will increase each year and unless significant recruitment occurs the spawning stock will decline.

During the course of sampling skin hemorrhages were observed on about 10 percent of herring sampled. Fish were sent to the pathology lab in Juneau and the VHS virus was again identified. The lab also found the presence of *Ichthyophonus*, a fungal disease in 30 percent of the sampled fish.

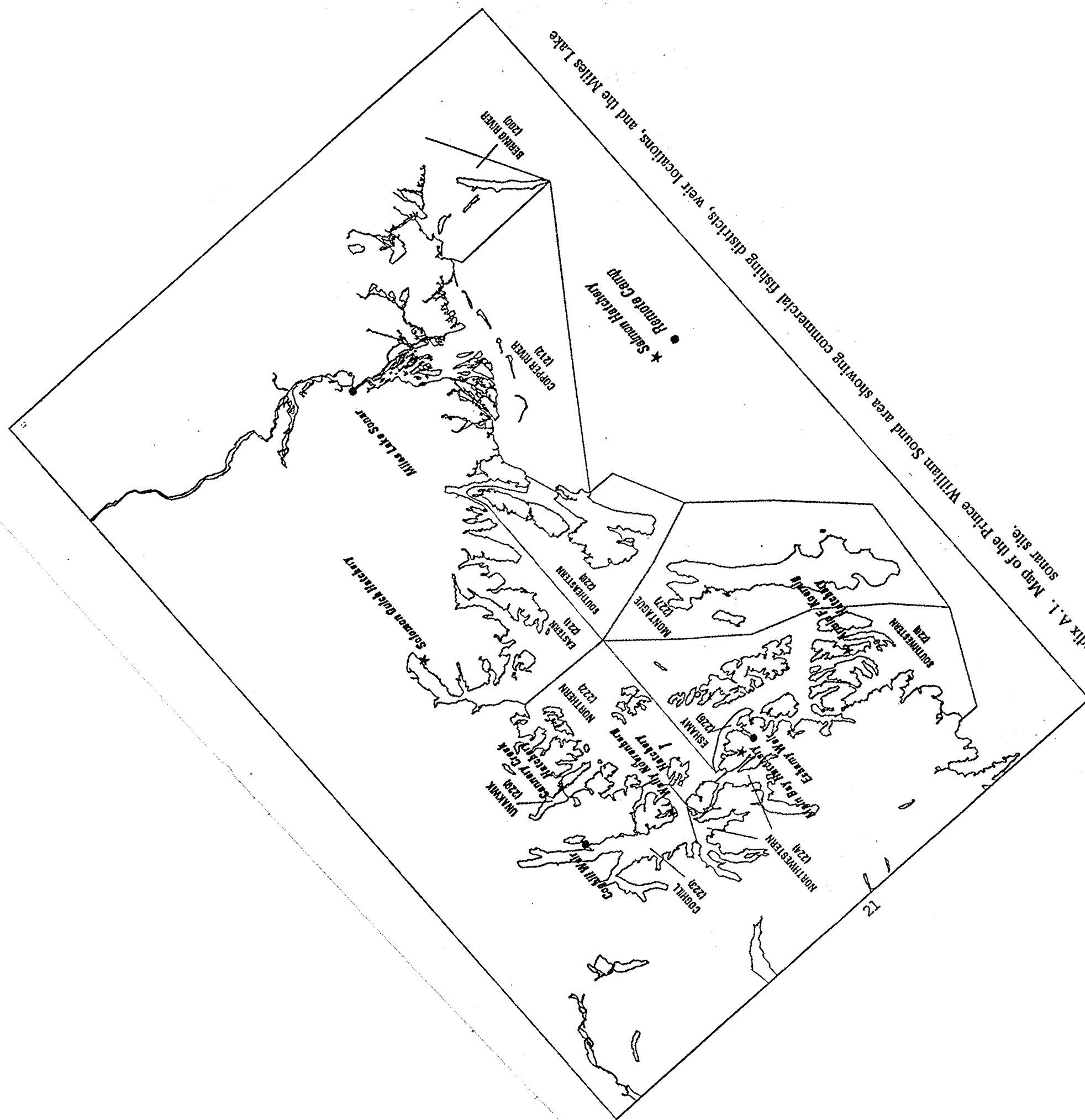
The timing of spawning was normal with the peak on April 21. The total statute miles of shoreline spawn was 14.6, the lowest ever recorded. A total of 14 miles of spawn occurred in the Montague area; 0.3 mile of spawn in the Northeast area; and 0.27 mile of spawn in the Southeast area. There was no spawning activity on the North Shore or at Naked Island.

The 1994 food-and-bait fishery was the first fishery of the 1994-95 herring management year. The food-and-bait fishery was cancelled due to low stock condition.

1994-95 HERRING SEASON OUTLOOK

The management year for herring is from July 1 through June 30. In regulation, the guideline harvest level for all fisheries is established before the fall food-and-bait season and is based upon the final spawning biomass estimate from the previous spring, cohort analysis, and projected recruitment. In practice the department has not been able to produce a final spring biomass estimate prior to the fall food-and-bait fishery. During the past several years, the fall food-and-bait fishery guideline harvest level was set based on a preliminary biomass estimate. The guideline harvest for the spring fisheries has been set in early winter after a final analysis is complete.

The herring forecast uses an Age Structured Analysis (ASA) model. The model incorporates previous spawn survey egg deposition estimates, miles of spawn, growth, and age compositions from the spawning stock and fishery harvests. Natural mortality is estimated by the ASA model whereas in prior years natural mortality was taken from the literature. The model hindcasted the 1994 spawning biomass at 18,420 tons. Accounting for growth and mortality the ASA model projects the 1995 spawning stock to be 20,410 tons. The spawning biomass should be dominated by age-7 herring. At the given stock size no harvests are expected.



Appendix A.1. Map of the sonar site.

APPENDIX A

PRINCE WILLIAM SOUND

AREA WIDE INFORMATION

Appendix A.2. Commercial salmon harvest by species, gear type and district in the Prince William Sound Management Area, 1994.

District	Effort	Chinook	Sockeye	Coho	Pink	Chum	Total
Eastern	133	39	2,196	9,401	11,554,320	42,447	11,608,403
Northern	152	16	18,850	2,784	6,781,836	26,643	6,830,129
Unakwik	33	0	226	102	388,901	73	389,302
Coghill	122	50	21,060	30,517	3,538,760	3,575	3,593,962
Southwestern	138	16	38,367	4,101	3,408,093	9,375	3,459,952
Purse Seine	171	121	80,699	46,905	25,671,910	82,113	25,881,748
Bering River ^a	181	121	27,926	259,003	34	63	287,147
Copper River ^a	506	47,061	1,152,220	677,633	12,079	19,055	1,908,048
Coghill	332	390	12,928	50,879	58,334	554,181	676,712
Unakwik	17	0	548	0	301	27	876
Eshamy	76	2	61,848	623	254,535	9,497	326,505
Drift Gillnet	510	47,574	1,255,470	988,138	325,283	582,823	3,199,288
Eshamy	26	9	97,664	628	311,134	6,908	416,343
Set Gillnet	26	9	97,664	628	311,134	6,908	416,343
Solomon Gulch	1	6	344	13,022	3,181,846	2,868	3,198,086
Cannery Creek	1	0	2	2	3,558,438	27	3,558,469
Wally Noerenberg	1	835	0	9,430	2,407,526	374,375	2,792,166
Main Bay	1	1	79,131	0	213,270	3,095	295,497
Armin F. Koernig	1	0	64	0	1,160,359	0	1,160,423
Hatchery Sales ^b	5	842	79,541	22,454	10,521,439	380,365	11,004,641
ADF&G Test Fish	2	12	955	29	56,535	5,965	63,496
Confiscated Fish	2	0	0	0	0	39	39
Other Gear	4	12	955	29	56,535	6,004	63,535
<hr/>							
Prince William Sound							
Total		48,558	1,514,329	1,058,154	36,886,301	1,058,213	40,565,555

^a Does not include salmon taken for home use as reported on fish tickets.

^b Hatchery sales for hatchery operating costs. Does not include salmon roe sales.

Appendix A.3. Commercial salmon harvest by species from all gear types,
Prince William Sound, 1971 - 1994. ^a

Year	Catch by Species					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1971	20,142	741,945	327,697	7,312,730	579,552	8,982,066
1972	23,003	976,115	124,670	57,090	46,088	1,226,966
1973	22,638	473,044	199,019	2,065,844	740,017	3,500,562
1974	20,602	741,340	76,041	458,619	89,210	1,385,812
1975	22,325	546,634	84,109	4,453,041	101,286	5,207,395
1976	32,751	1,008,912	160,494	3,022,426	370,657	4,595,240
1977	22,864	943,943	179,417	4,536,459	573,166	6,255,849
1978	30,435	505,509	312,930	2,917,499	489,771	4,256,144
1979	20,078	369,583	315,774	15,615,810	349,615	16,670,860
1980	8,643	208,724	337,123	14,161,023	482,214	15,197,727
1981	20,782	784,469	396,163	20,558,304	1,888,822	23,648,540
1982	47,871	2,362,328	623,877	20,403,423	1,336,878	24,774,377
1983	53,879	908,469	365,469	13,977,116	1,048,737	16,353,670
1984	39,774	1,303,515	609,484	22,119,309	1,229,185	25,301,267
1985	43,735	1,464,563	1,025,046	25,252,924	1,321,538	29,107,806
1986	42,128	1,288,712	426,240	11,410,302	1,700,906	14,868,288
1987	41,909	1,737,989	175,214	29,230,303	1,919,415	33,104,830
1988 ^b	31,797	767,674	477,816	11,820,121	1,843,317	14,940,725
1989 ^b	32,006	1,175,238	424,980	21,886,466	1,001,809	24,520,499
1990 ^b	22,163	911,607	524,274	44,165,077	967,384	46,590,505
1991 ^c	35,355	1,734,544	641,854	37,135,561	352,321	39,899,635
1992 ^d	41,306	1,771,612	619,460	8,637,116	334,376	11,403,870
1993 ^e	32,005	1,851,133	445,612	5,761,097	1,186,365	9,276,212
1994 ^f	48,558	1,514,329	1,058,154	36,886,301	1,058,213	40,565,555
Ten Year						
Average	36,218	1,400,659	536,998	21,741,828	1,185,662	24,901,364
(1984-93)						

^a Includes catches by all gear types and hatchery sales from the Eastern, Northern, Coghill, Unakwik, Northwestern, Eshamy, Southwestern, Montague, Southeastern, Copper River and Bering River districts.

^b Includes confiscated and educational special use permits. Also includes hatchery sales harvests and carcass sales.

^c Includes confiscated and educational special use permits, hatchery sales harvests, and donated and discarded catches.

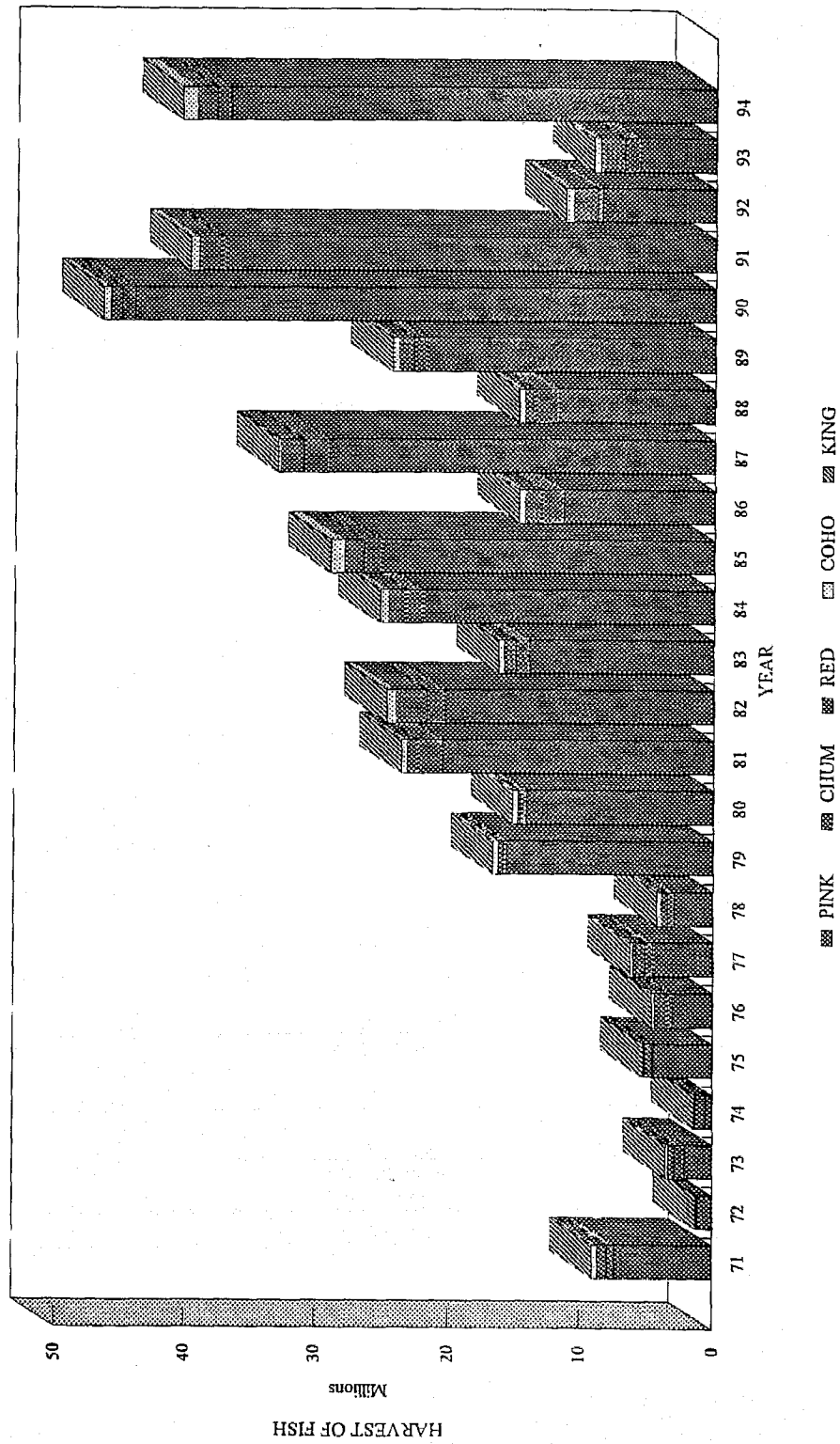
^d Includes catches from confiscated and educational special use permits, hatchery sales harvests and test fisheries.

^e Includes catches from confiscated permits, hatchery sales harvests, donated fish harvest and test fisheries.

^f Includes catches from confiscated permits, hatchery sales harvests and test fisheries.

ALL SPECIES SALMON CATCH

PRINCE WILLIAM SOUND



Appendix A.4. Commercial salmon harvest by species for all gear types combined, Prince William Sound, 1971-1994

Appendix A.5. Mean price and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 1994. ^a

PURSE SEINE

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	121	1,753	14.49	0.63	1,104.39
Sockeye	80,699	485,569	6.02	0.89	432,156.41
Coho	46,905	386,410	8.24	0.54	208,661.40
Pink	25,671,910	78,358,766	3.05	0.16	12,537,402.56
Chum	82,113	684,086	8.33	0.24	164,180.64
	25,881,748	79,916,584			\$13,343,505.40

DRIFT GILLNET

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	47,574	1,080,323	22.71	1.42	1,534,058.66
Sockeye	1,255,470	7,309,116	5.82	1.26	9,209,486.16
Coho	988,138	9,766,693	9.88	0.73	7,129,685.89
Pink	325,283	1,066,644	3.28	0.12	127,997.28
Chum	582,823	4,987,161	8.56	0.48	2,393,837.28
	3,199,288	24,209,937			\$20,395,065.27

SET GILLNET

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	9	144	16.00	0.84	120.96
Sockeye	97,664	550,141	5.63	1.16	638,163.56
Coho	628	5,243	8.35	0.67	3,512.81
Pink	311,134	1,066,342	3.43	0.11	117,297.62
Chum	6,908	58,359	8.45	0.32	18,674.88
	416,343	1,680,229			\$777,769.83

HATCHERY SALES ^b

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	842	9,686	11.50	1.19	11,526.34
Sockeye	79,541	351,056	4.41	1.02	358,077.12
Coho	22,454	179,503	7.99	0.46	82,571.38
Pink	10,521,439	34,390,548	3.27	0.21	7,222,015.08
Chum	380,365	3,197,047	8.41	0.50	1,598,523.50
	11,004,641	38,127,840			\$9,272,713.42

OTHER GEAR ^c

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	12	149	12.42	0.96	143.04
Sockeye	955	5,420	5.68	0.68	3,685.60
Coho	29	269	9.28	0.33	88.77
Pink	56,535	176,793	3.13	0.16	28,286.88
Chum	6,004	50,199	8.36	0.70	35,139.30
	63,535	232,830			\$67,343.59

Gear Type	Value of Catch	No. of Permits	Average Earnings
Purse Seine	13,343,505.40	171	\$78,032.20
Drift Gillnet	20,395,065.27	510	\$39,990.32
Set Gillnet	777,769.83	26	\$29,914.22
Subtotal- Value of CPF Catch	\$34,516,340.50		
Hatchery	\$9,272,713.42		
Other Gear	\$67,343.59		
GRAND TOTAL	\$43,856,397.51		

^a Mean prices are estimated at the end of the season based on the average of cash buyers and the advance prices paid by the canneries on the grounds. They do not reflect the spring adjustments paid by some companies.

^b Prices are an average of sales harvest prices.

^c Includes the confiscated fish sales and ADF&G test fish.

Appendix A.6. Total commercial salmon harvest and estimated value by gear type and district, Prince William Sound, 1994.

District	Numbers of Fish							Total	Estimated Value ^a
	Permits	Landings	Chinook	Sockeye	Coho	Pink	Chum		
221 Eastern	133	1,433	39	2,196	9,401	11,554,320	42,447	11,608,403	5,594,219
222 Northern	152	982	16	18,850	2,784	6,781,836	26,643	6,830,129	3,537,534
229 Unakwik	33	61	0	226	102	388,901	73	389,302	194,160
223 Coghill	122	515	50	21,060	30,517	3,538,760	3,575	3,593,962	2,088,074
226 Southwestern	138	460	16	38,367	4,101	3,408,093	9,375	3,459,952	1,929,518
PURSE SEINE TOTAL	171	3,451	121	80,699	46,905	25,671,910	82,113	25,881,748	\$13,343,505
200 Bering River	181	2,210	121	27,926	259,003	34	63	287,147	1,991,199
212 Copper River	506	14,830	47,061	1,152,220	677,633	12,079	19,055	1,908,048	15,113,954
223 Coghill	332	3,666	390	12,928	50,879	58,334	554,181	676,712	2,725,989
229 Unakwik	17	22	0	548	0	301	27	876	3,759
225 Eshamv	76	883	2	61,848	623	254,535	9,497	326,505	560,154
DRIFT GILLNET TOTAL	510	21,611	47,574	1,255,470	988,138	325,283	582,823	3,199,288	\$20,395,065
225 Eshamv	26	1,010	9	97,664	628	311,134	6,908	416,343	777,770
SET GILLNET TOTAL	26	1,010	9	97,664	628	311,134	6,908	416,343	\$777,770
221 Solomon Gulch	1	93	6	344	13,022	3,181,846	2,868	3,198,086	2,526,298
222 Cannery Creek	1	211	0	2	2	3,558,438	27	3,558,469	2,210,192
223 Wally Noerenberg	1	174	835	0	9,430	2,407,526	374,375	2,792,166	3,246,052
225 Main Bay	1	29	1	79,131	0	213,270	3,095	295,497	478,233
226 Armin F. Koernig	1	53	0	64	0	1,160,359	0	1,160,423	811,938
HATCHERY SALES TOTAL	5	560	842	79,541	22,454	10,521,439	380,365	11,004,641	\$9,272,713 ^b
ADF&G Test Fish	2	14	12	955	29	56,535	5,965	63,496	67,237
Confiscated	2	2	0	0	0	0	39	39	106
OTHER GEAR TOTAL	4	16	12	955	29	56,535	5,004	63,535	\$67,343
PRINCE WILLIAM SOUND									
GRAND TOTAL			48,558	1,514,329	1,058,154	36,886,301	1,058,213	40,565,555	\$43,856,396

^a (Reported number of pounds delivered by species) x (estimated average price per pound for that species and district) = Estimated Value. Actual value may vary.

^b Hatchery sales for hatchery operating costs. Does not include salmon roe sales.

Appendix A.7. Average price paid to fishermen for salmon, Prince William Sound, 1985-1994. ^a

Species	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
King Salmon										
Copper/Bering Districts	1.65	1.45	1.75	2.23	2.25	2.24	1.65	2.50	1.82	1.43
Prince William Sound							1.00	1.55	1.07	0.80
Sockeye Salmon	1.50									
Copper River	1.55	1.65	1.90	3.20	2.30	2.13	1.28	2.50	1.32	1.27
Bering River	1.10	1.65	1.90	3.00	2.30	2.13	1.28	2.50	1.40	1.06
Coghill/Unakwik Districts	1.20	1.37	1.75	2.68	2.00	1.50	1.28	1.55	0.93	0.94
Eshamy	1.10	1.34	1.60	2.77		1.45	1.28	1.55	0.86	1.19
General Purse Seine		1.35	1.45	2.68	2.00	1.50	1.00	1.55	0.83	0.88
Coho Salmon										
Copper/Bering Districts	0.85	0.94	0.93	2.35	0.60	0.97	0.65	0.90	0.80	0.74
Prince William Sound	0.40	0.46	0.55	1.86	0.70	0.97	0.45	0.90	0.77	0.60
Pink Salmon	0.22	0.23	0.40	0.79	0.35	0.30	0.12	0.18	0.16	0.16
Chum Salmon	0.29	0.33	0.39	0.73	0.35	0.70	0.40	0.55	0.68	0.45

^a Based on processor reports, fish tickets and other sources. Prices are monitored throughout the season and a weighted average is generally used. Prices generally do not reflect post season adjustments. Prices are an estimate only; Caution should be used if using these prices to estimate value.

Appendix A.8. Harvest projections for the 1994 commercial salmon fishery by district and species, Prince William Sound. ^a

COMMERCIAL HARVEST (1,000's of fish)										
District	Chinook		Sockeye		Coho		Pink		Chum	
	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range
Copper River ^b	34.6		538.0		308.0	144.0-430.0				
Bering River ^c					124.0	0.0-225.0				
Coghill ^d			9.5	0.0-79.4						
Eshamy ^e			37.7	0.0-105.43						
General P.W.S. Districts			11.6	0.0-25.95	11.4	0.0-25.45	620.0	0.00-2,950.0	51.9	0.0-511.0
Total Wild Stock	34.6		596.8		443.4		620.0	0.00-2,950.0	51.9	0.0-511.0
Solomon Gulch					24.8	12.52-37.04	1,470.0	730.0-3,060.0	24.8	13.8-35.9
Armin F. Koernig							3,800.0	3,210.0-4,390.0		
Wally Noerenberg	6.5	0.0- 4.3			80.5	16.4-144.61	5,460.0	3,330.0-7,590.0	794.6	615.9-974.0
Cannery Creek							4,420.0	1,480.0-7,360.0		
Main Bay ^f			308.6							
Gulkana			141.0							
Total Hatchery	6.5		449.6		105.3		15,150.00		819.4	
Total Hatchery and Wild	41.1		1,046.3		548.7		15,770.00	8,750.0-25,350.0	871.3	629.7-1,521.2

^a Formal forecast procedures are used for estimating wild stock returns for pink and chum salmon in Prince William Sound. Hatchery contributions are based on known fry releases and average marine survival rates. General P.W.S. sockeye production is based upon average harvest. Harvest estimates are only made for those species which constitute a significant portion of the catch. The harvest projections do not include 8.34 million pinks, 221,530 chum, and 127,530 sockeye, projected for harvest by hatcheries for cost recovery.

^b Formalized forecast procedures are used for Copper River chinook and sockeye returns. Copper River coho catches are based on mean annual harvest.

^c Bering River coho harvest estimates are based on mean annual harvest.

^d Coghill sockeye returns are formally forecast using a sibling relationship model for the major age class and spawner recruit relationships for other age classes. The pink and chum harvest is included in the "General PWS Districts" projection.

^e No formal forecast exists for Eshamy sockeye production. The pink and chum harvest is included in the "General PWS Districts" projection.

^f Main Bay sockeye harvest estimate includes all on site and remote returns of sockeye salmon.

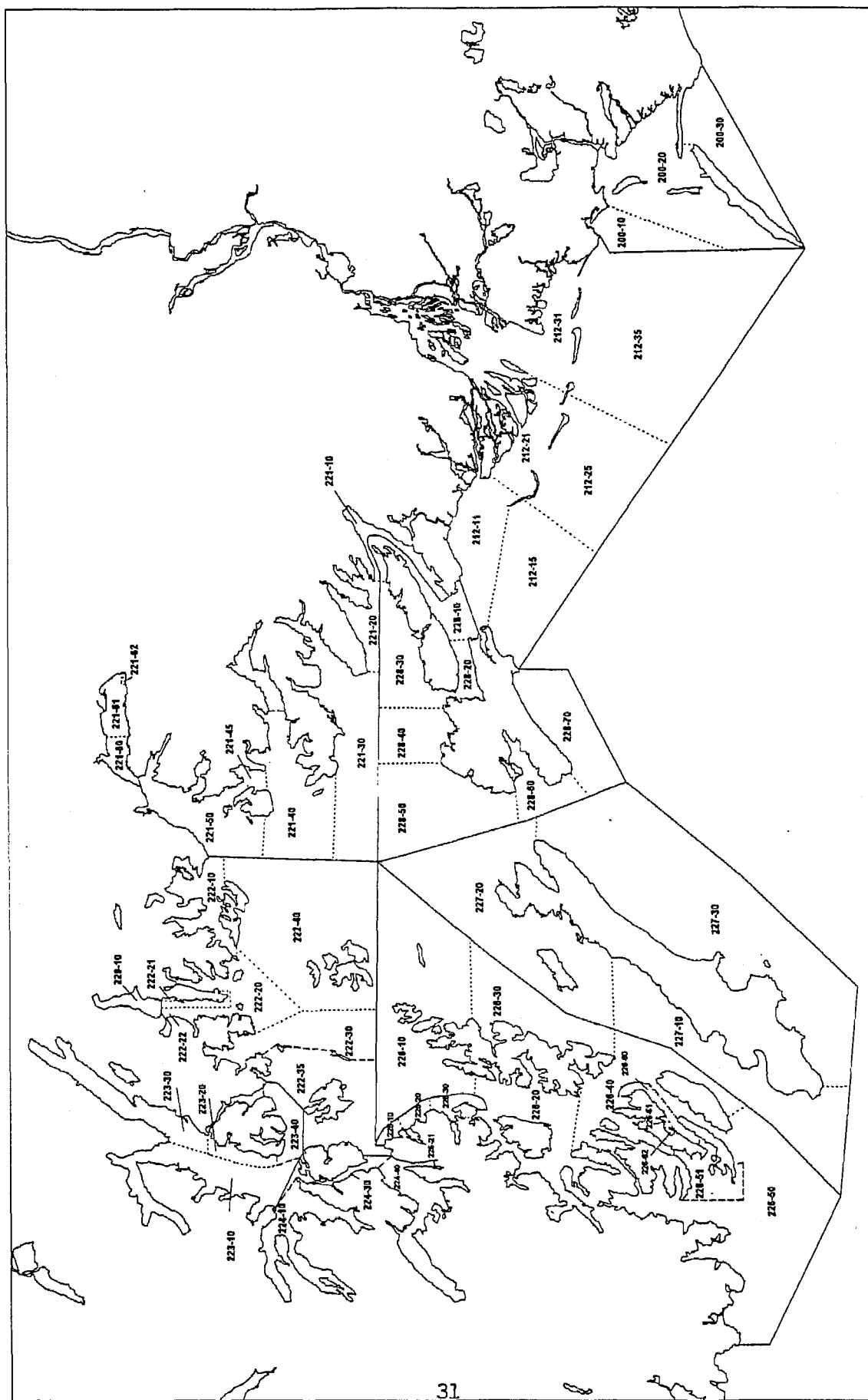
Appendix A.9. A listing of finfish processors, their location of operation, and type of product processed, Prince William Sound, 1994.

Executive Names, Address Location of Operations	Processor Code	Type of Product	Executive Names, Address Location of Operations	Processor Code	Type of Product
Alaska Fish P.O. Box 264 Cordova, Alaska 99574 Cliff Ward	F1406	Salmon	Low Water Clam Company P.O. Box 2232 Cordova, Alaska 99574 Mitchell Nowicki	F0010	Salmon
Big Dipper Seafoods P.O. Box 2816 Valdez, Alaska 99686 Jesse and Helen Frank	F1848	Salmon	Nautilus Marine, Inc. P.O. Box 727 Valdez, Alaska 99686 Tom Waterer	F0815	Salmon
Cannery Row Fish Company P.O. Box 120 Cordova, Alaska 99574 Greg Meyer/Sylvia Lange	F1673	Salmon	North Pacific Processors, Inc. P.O. Box 1040 Cordova, Alaska 99574 Ken Roemhildt	F0232	Salmon
Cook Inlet Processing P.O. Box 8163 Nikiski, Alaska 99635 Pat Hardina	F0186 F1155	Salmon	Pan Pacific Seafoods, Inc. 150 Nickerson, Suite #103 Seattle, Washington 98109 Andrew Nakatani	F0923	Salmon
Copper King II P.O. Box 981 Girdwood, Alaska 99587 Gary White	F1914	Salmon	Peter Pan Seafoods, Inc. P.O. Box 1027 Valdez, Alaska 99686 James Poor	F0141 F0142 F1041	Salmon
Eyak Packing Company P.O. Box 1131 Cordova, Alaska 99574 Gerald Masolini	F1515	Salmon	Prime Select Seafoods, Inc. P.O. Box 875 Cordova, Alaska 99574 Jeff Bailey	F1816	Salmon
Fish Tales Alaskan Seafood Products P.O. Box FLJ, Falls Bay Cordova, Alaska 99574 Hope Williams	F1801	Salmon	Prince William Sound Aquaculture P.O. Box 1110 Cordova, Alaska 99574	F1901 F1902 F1903	Salmon roe
Glacier Creek Seafoods P.O. Box 1063 Girdwood, Alaska 99587 Stevs Aberle	F1826	Salmon	Royal Pacific Fisheries P.O. Box 1370 Kenai, Alaska 99611 Marvin Dragseth	F0409	Salmon
Glacier Fish Company, Ltd. 1200 Westlake Ave. N., Suite #900 Seattle, Washington 98109 Linda Rucinski	F1401	Salmon	St. Elias Ocean Products, Inc. P.O. Box 548 Cordova, Alaska 99574 Hap Symmonds	F1455	Salmon
Great Pacific Seafoods, Inc. P.O. Box 710 Whittier, Alaska 99693 Joe Hale/Nancy Davidson	F1267	Salmon	Sahalee of Alaska, Inc. P.O. Box 104174 Anchorage, Alaska 99510 William and Christa Lind	F1485	Salmon
Inlet Fisheries, Inc. P.O. Box 530 Kenai, Alaska 99611 Sally Waechter	F1039	Salmon	Seward Fisheries P.O. Box 8 Seward, Alaska 99664 Jeff Poole	F0133 F0137 F0134 F0138 F0135	Salmon

-Continued-

Appendix A.9. (page 2 of 2)

Executive Names, Address Location of Operations	Processor Code	Type of Product	Executive Names, Address Location of Operations	Processor Code	Type of Product
Silver Lining Seafoods P.O. Box 260 Cordova, Alaska 99574 Bill Gilbert	F1486	Herring Salmon	Wild Card, Inc. P.O. Box 1871 Cordova, Alaska 99574 Steven and Lisa Walters	F1822	Salmon
Valdez Fisheries Development Assoc. P.O. Box 125 Valdez, Alaska 99686 Dave Cobb/Laura Weaver	F1355	Salmon	Winton Fisheries, Inc. P.O. Box 64 Cordova, Alaska 99574 Mark and Julie Winton	F1815	Salmon
Whitney Foods P.O. Box 190429 Anchorage, Alaska 99519 Denise Von Pressentin	F0827	Salmon	Woodbine Alaska Fish Co. P.O. Box 757 Rio Vista, California 94571 Virginia Bussey Ferrari	F0214	Salmon



Appendix A.10. Prince William Sound area showing commercial fishing districts and statistical reporting area, 1994.

APPENDIX B

COPPER AND BERING RIVER DISTRICTS

Appendix B.1. Commercial salmon catch by species in the Copper River District,
1973 - 1994.

Year	Catch by Species					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1973	19,915	332,816	132,272	8,964	10,173	504,140
1974	18,980	607,766	46,625	9,839	664	683,874
1975	19,644	335,384	53,805	236	807	409,876
1976	31,479	865,195	111,900	3,392	178	1,012,144
1977	21,722	602,737	131,356	23,185	335	779,335
1978	29,062	249,872	220,338	3,512	2,233	505,017
1979	17,678	80,528	194,885	1,295	107	294,493
1980	8,454	18,908	225,299	3,966	198	256,825
1981	20,178	477,662	310,154	23,952	1,799	833,745
1982	47,362	1,177,632	454,763	7,154	1,177	1,688,088
1983	52,500	626,735	234,243	7,345	2,217	923,040
1984	38,957	900,043	382,432	32,194	6,935	1,360,561
1985	42,214	927,553	587,990	19,061	5,966	1,582,784
1986	40,670	780,808	295,980	3,016	17,614	1,138,088
1987	41,001	1,180,782	111,599	31,635	14,796	1,379,813
1988	30,741	576,950	315,568	2,775	11,022	937,056
1989	30,863	1,025,923	194,454	25,877	5,845	1,282,962
1990	21,702	844,778	246,797	1,596	7,545	1,122,418
1991	34,787	1,206,811	385,086	1,246	20,220	1,648,150
1992	39,810	970,938	291,627	1,664	5,807	1,309,846
1993	29,727	1,398,234	281,469	9,579	13,002	1,732,011
1994	47,061	1,152,220	677,633	12,079	19,055	1,908,048
Ten Year Average (1984-93)	35,047	981,282	309,300	12,864	10,875	1,349,369

Appendix B.2. Anticipated and actual weekly catch and escapement of sockeye salmon in the Copper River District drift gillnet fishery, 1994.

Semi-Weekly Date	Fishing Time (Hrs.)	Actual Catch	Anticipated Catch ^a	Anticipated Cumulative Escapement ^b	Actual Cumulative Escapement ^c
May 14			19,862		
May 18	24	18,818	44,580	2,346	1,134
May 21	12	41,675	62,524	7,310	4,651
May 25	24	46,745	76,597	23,531	17,611
May 28	24	143,928	60,072	44,016	26,795
June 01	36	102,901	58,730	77,742	45,688
June 04	24	106,555	39,715	110,028	62,735
June 08	12	39,135	43,334	158,247	114,854
June 11	12	32,821	37,363	193,152	162,756
June 15	24	32,623	40,014	231,409	212,163
June 18	24	37,678	27,616	254,734	255,058
June 22	24	46,730	32,444	280,091	310,952
June 25	24	50,493	17,728	299,006	368,060
June 29	36	50,915	16,989	322,333	419,482
July 02	24	31,504	15,350	338,161	450,488
July 06	24	32,158	15,419	359,392	484,975
July 09	24	42,950	14,169	373,653	512,234
July 13	36	57,228	12,492	394,828	570,576
July 16	36	52,767	11,626	411,680	602,025
July 20	48	45,453	10,082	443,394	625,327
July 23	48	35,815	6,346	462,049	661,006
July 27	48	31,500	5,516	484,223	695,258
July 30	48	22,794	3,557	494,445	707,877
Aug 03	48	14,616	2,584	500,942	715,577 d
Aug 06	36	12,164	1,549		
Aug 10	48	11,029	1,088		
Aug 17	48	5,422	509		
Aug 20	12	1,664	536		
Aug 23	30	1,535	255		
Aug 27	48	957	141		
Aug 29- Oct 22	1,230	1,647	212		
Season Total	2,136	1,152,220	678,999	516,000	

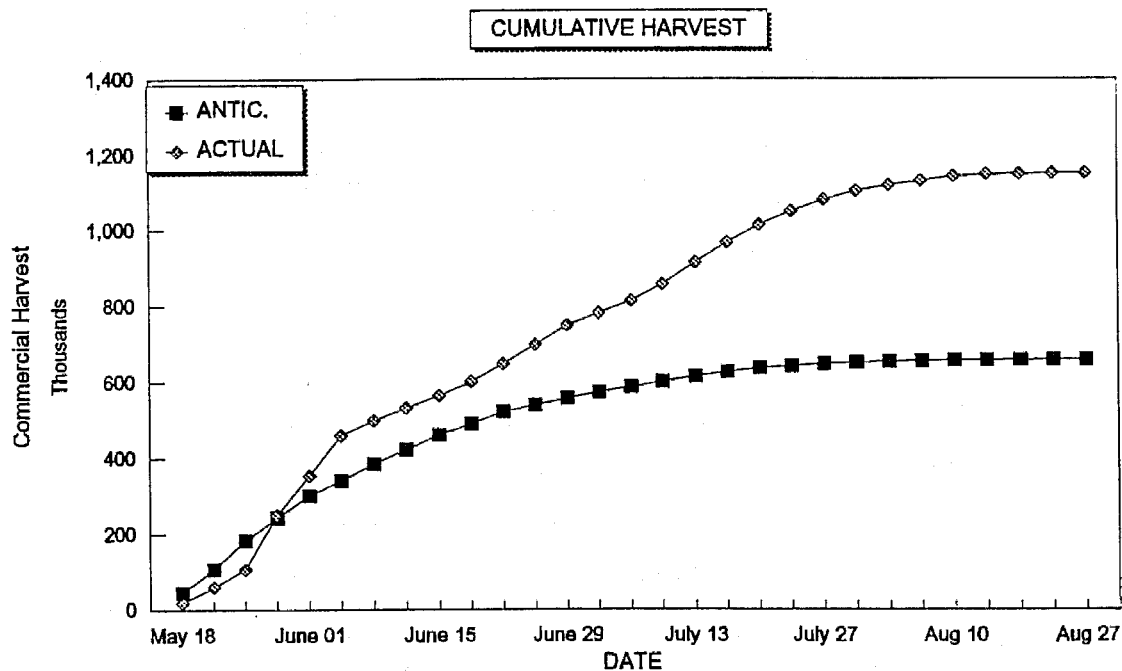
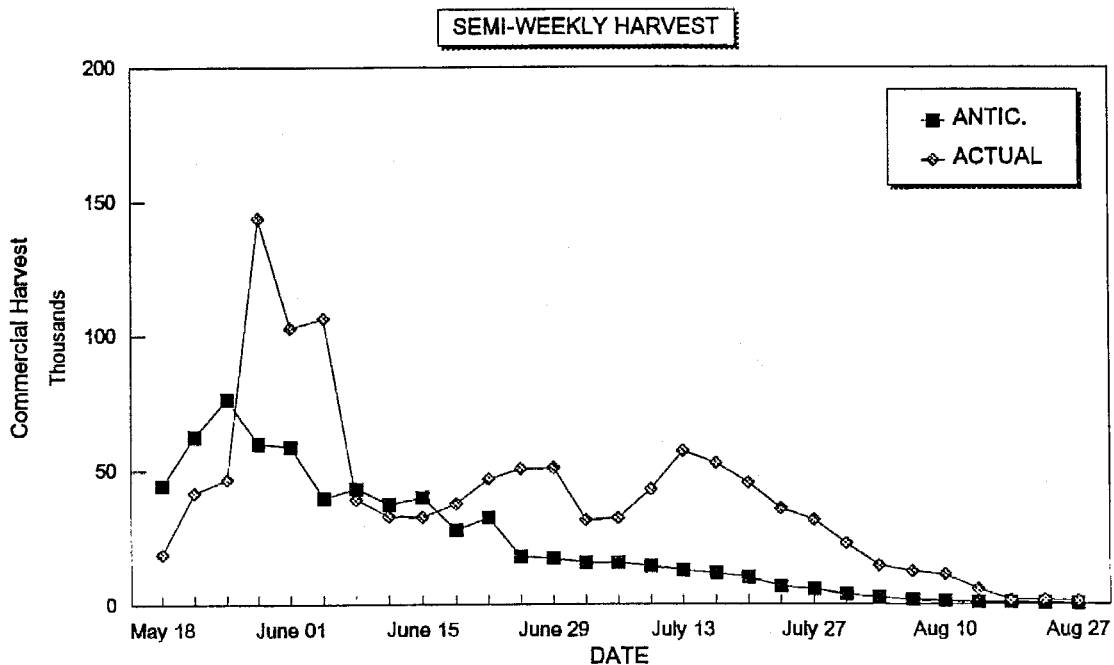
^a Based on average historic catches for comparable dates (1969-1993).

^b Based on historical escapements at Miles Lake sonar, includes upriver chinook escapement component and sockeye brood stock for the Gulkana Hatchery. Does not include sockeye escapements for the Copper/Bering delta streams.

^c Escapement estimate from sonar counters at Miles Lake.

^d Miles Lake sonar operation ended August 1.

COPPER RIVER DISTRICT COMMERCIAL SOCKEYE HARVEST



Appendix B.3. Anticipated and actual weekly and cumulative harvest of sockeye salmon in the Copper River drift gillnet fishery, 1994.

Appendix B.4. Commercial salmon harvest by period in the Copper River District drift gillnet fishery, 1994.

Period	Date ^a	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
01	5/16	24	402	537	12,920	292,913	18,818	111,931	0	0	0	0	114	856
02	5/20	12	389	411	6,696	150,543	41,675	239,422	9	74	0	0	9	52
03	5/23	24	271	383	5,210	115,083	46,745	268,570	0	0	0	0	680	4,583
04	5/26	24	456	736	5,351	116,361	143,928	829,323	2	12	0	0	1,987	13,544
05	5/30	36	471	819	5,492	126,111	102,901	597,180	1	15	0	0	8,276	55,597
06	6/02	24	451	673	3,564	83,796	106,555	617,677	0	0	0	0	4,111	28,434
07	6/06	12	418	469	2,652	61,665	39,135	225,451	1	8	0	0	173	1,211
08	6/10	12	412	466	2,019	47,906	32,821	191,651	4	27	0	0	408	3,122
09	6/13	24	210	321	1,423	34,834	32,623	189,718	2	14	0	0	128	876
10	6/16	24	178	278	748	19,007	37,678	222,504	0	0	0	0	146	1,153
11	6/20	24	217	307	301	7,666	46,730	272,746	11	80	1	4	170	1,360
12	6/23	24	337	444	334	7,877	50,493	293,328	23	208	6	22	694	5,423
13	6/27	36	225	337	153	4,072	50,915	294,098	27	187	12	45	117	932
14	6/30	24	241	303	59	1,474	31,504	183,962	55	483	23	95	207	1,604
15	7/04	24	217	286	35	788	32,158	188,399	60	449	14	37	142	1,214
16	7/07	24	200	280	20	466	42,950	251,334	233	1,726	32	103	183	1,422
17	7/11	36	232	358	17	292	57,228	337,227	648	5,516	230	720	280	2,107
18	7/14	36	276	422	25	510	52,767	314,075	1,380	11,062	638	2,179	462	3,587
19	7/18	48	186	319	8	140	45,453	269,804	622	4,546	223	805	227	1,656
20	7/21	48	191	322	3	51	35,815	213,545	1,846	12,242	674	2,335	138	1,003
21	7/25	48	191	299	6	155	31,500	186,501	3,334	23,309	775	2,877	99	690
22	7/28	48	165	257	4	83	22,794	133,442	6,975	49,439	2,079	7,532	102	741
23	8/01	48	139	231	2	27	14,616	83,871	15,890	120,434	1,881	6,943	79	513
24	8/04	36	176	258	5	61	12,164	70,011	18,647	146,956	2,881	9,845	31	218
25	8/08	48	199	427	2	52	11,029	64,774	35,039	303,044	2,148	6,904	30	224
26	8/15	48	283	791	3	75	5,422	33,401	126,989	1,240,210	284	1,012	39	259
27	8/19	12	266	344	3	81	1,664	10,150	43,745	427,713	72	234	6	54
28	8/22	30	329	667	1	18	1,535	9,389	99,768	973,742	40	154	6	40
29	8/25	48	294	555	3	80	957	5,732	65,268	645,616	34	112	3	20
30	8/29	102	307	981	1	48	1,154	7,014	110,288	1,155,222	25	75	2	16
31	9/05	132	293	978	0	0	421	2,521	107,800	1,136,162	4	13	3	14
32	9/11	168	185	411	0	0	70	409	29,711	328,494	2	6	3	20
33	9/18	168	47	91	1	8	2	11	6,407	78,871	1	3	0	0
34	9/25	168	36	68	0	0	0	0	2,834	35,372	0	0	0	0
35	10/2	168	0	0	0	0	0	0	0	0	0	0	0	0
36	10/9	168	c	c	0	0	0	0	14	173	0	0	0	0
37	10/16	156	0	0	0	0	0	0	0	0	0	0	0	0
Total		2,136	506	14,830	47,061	1,072,243	1,152,220	6,719,171	677,633	6,701,406	12,079	42,055	19,055	132,545
Average Weight						22.78		5.83		9.89		3.48		6.96

^a Starting date of period.

^b From 5/15- 8/07 all 24-hour Monday openers started at 7:00 a.m. and Thursday openers started at 7:00 p.m. All 12-hour periods started at 7:00 a.m.; after August 7, all periods began at 12:00 noon.

^c Confidentiality Fisheries Information; less than the required three permits fishing in a statistical area.

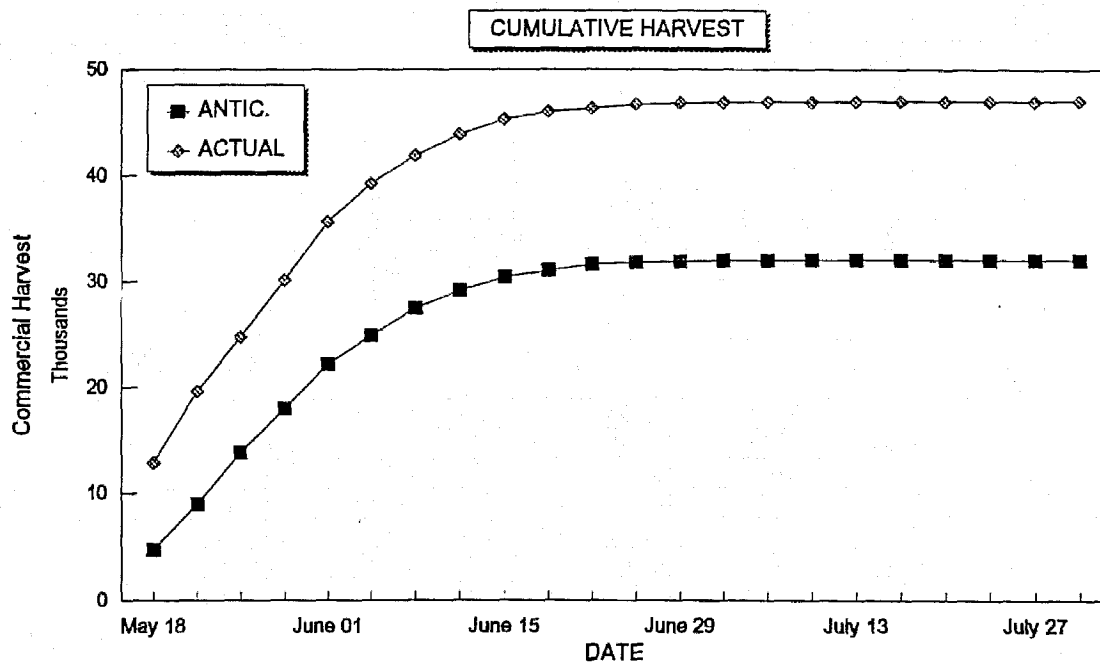
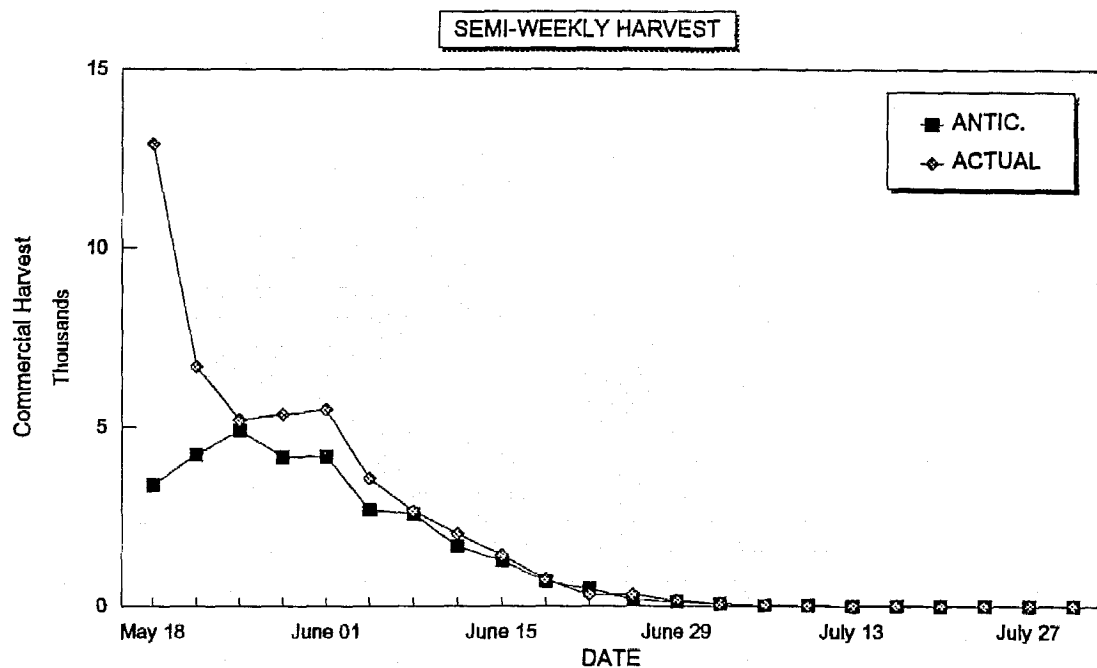
Appendix B.5. Anticipated and actual weekly catch of chinook and coho salmon in the Copper River District drift gillnet fishery, 1994.

Week Ending Date	Length of Fishing Periods (Hrs)	Chinook		Coho	
		Actual Catch	Anticipated Catch ^a	Actual Catch	Anticipated Catch ^a
May 14			3,847		
May 21	24 and 12	19,616	7,627	9	
May 28	24 and 24	10,561	9,065	2	
June 04	36 and 24	9,056	6,891	1	
June 11	12 and 12	4,671	4,236	5	
June 18	24 and 24	2,171	1,967	2	
June 25	24 and 24	635	673	34	
July 02	36 and 24	212	173	82	
July 09	24 and 24	55	52	293	
July 16	36 and 36	42	28	2,028	1,736 ^b
July 23	48 and 48	11	11	2,468	1,179
July 30	48 and 48	10	8	10,309	2,608
Aug 06	48 and 36	7		34,537	9,394
Aug 13	48	2		35,039	20,838
Aug 20	48 and 12	6		170,734	44,263
Aug 27	30 and 48	4		165,036	60,510
Sept 03	102	1		110,288	66,723
Sept 10	132			107,800	58,034
Sept 17	168			29,711	27,361
Sept 24	168	1		6,407	12,391
Oct 01	168			2,834	2,596
Oct 08	168			0	853
Oct 15	168			14	14
Oct 22	156			0	0
Season Total		47,061	34,578	677,633	308,500

^a Based on average historic catches for comparable dates (1969 - 1993).

^b The anticipated cumulative harvest through July 16.

COPPER RIVER DISTRICT COMMERCIAL CHINOOK HARVEST



Appendix B.6. Anticipated and actual weekly and cumulative harvest of chinook salmon in the Copper River drift gillnet fishery, 1994.

Appendix B.7. Daily sockeye salmon escapement estimates at Miles Lake sonar, 1994.

Date	Water Level a	North Bank	Estimate South Bank	Daily	Cumulative	Escapement Objective Daily	Escapement Objective Cumulative	0600 Count	Projected Daily
15-May	39.26								
16-May	39.33								
17-May	39.43	21 b	427	448	448	107	107		
18-May	39.53	33	653	686	1,134	931	1,038		
19-May	39.76	45	907	952	2,086	1,307	2,345		
20-May	40.17	45	910	955	3,041	1,514	3,859		
21-May	40.35	77	1,533	1,610	4,651	1,657	5,516		
22-May	40.19	115	2,307	2,422	7,073	1,793	7,309		
23-May	40.07	169	3,389	3,558	10,631	2,740	10,049		
24-May	40.12	134	2,763	2,897	13,528	3,513	13,562		
25-May	40.17	182	3,901	4,083	17,611	4,825	18,387		
26-May	40.05	147	3,135	3,282	20,893	5,143	23,530		
27-May	40.03	124	2,731	2,855	23,748	5,363	28,893		
28-May	40.11	145	2,902	3,047	26,795	6,663	35,556		
29-May	40.08	138	2,750	2,888	29,683	8,459	44,015		
30-May	40.22	94	1,872	1,966	31,649	6,784	50,799		
31-May	40.23	220	4,396	4,616	36,265	7,660	58,459		
01-Jun	40.21	449	8,974	9,423	45,688	9,490	67,949		
02-Jun	40.22	371	7,396	7,767	53,455	9,792	77,741		
03-Jun	40.27	149	2,988	3,137	56,592	10,515	88,256		
04-Jun	40.30	293	5,850	6,143	62,735	10,265	98,521		
05-Jun	40.40	251	5,014	5,265	68,000	11,506	110,027		
06-Jun	40.52	576	11,524	12,100	80,100	12,718	122,745		
07-Jun	40.75	815	15,917	16,732	96,832	11,591	134,336		
08-Jun	40.88	1,754	16,268 c	18,022	114,854	11,208	145,544	3,640	14,560
09-Jun	40.97	1,720	16,322	18,042	132,896	12,702	158,246	5,345	21,380
10-Jun	41.10	2,346	15,242	17,588	150,484	11,963	170,209	5,524	22,096
11-Jun	41.38	1,721	10,551	12,272	162,756	11,666	181,875	4,673	18,692
12-Jun	41.55	1,230	11,778	13,008	175,764	11,276	193,151	2,015	8,060
13-Jun	41.74	1,489	7,592	9,081	184,845	10,601	203,752	3,377	13,508
14-Jun	42.00	2,172	13,467	15,639	200,484	9,464	213,216	4,776	19,104
15-Jun	42.44	518	11,161	11,679	212,163	8,915	222,131	2,039	8,156
16-Jun	42.82	500	13,727	14,227	226,390	9,277	231,408	3,137	12,548
17-Jun	43.11	921	10,524	11,445	237,835	8,171	239,579	2,082	8,328
18-Jun	43.26	731	16,492	17,223	255,058	8,094	247,673	2,852	11,408
19-Jun	43.25	691	18,701	19,392	274,450	7,060	254,733	5,820	23,280
20-Jun	43.02	1,000	10,498	11,498	285,948	6,480	261,213	3,226	12,904
21-Jun	42.89	876	10,823	11,699	297,647	6,597	267,810	2,465	9,860
22-Jun	42.72	1,274	12,031	13,305	310,952	6,151	273,961	2,551	10,204
23-Jun	42.85	1,389	17,297	18,686	329,638	6,129	280,090	4,565	18,260
24-Jun	43.16	801	23,481	24,282	353,920	6,354	286,444	4,425	17,700
25-Jun	43.34	419	13,721	14,140	368,060	6,249	292,693	4,167	16,668
26-Jun	43.39	376	11,828	12,204	380,264	6,312	299,005	2,398	9,592
27-Jun	43.06	628	13,518	14,146	394,410	5,894	304,899	4,146	16,584
28-Jun	42.54	498	8,715	9,213	403,623	5,847	310,746	2,956	11,824
29-Jun	42.20	976	14,883	15,859	419,482	5,769	316,515	2,740	10,960
30-Jun	42.05	742	10,103	10,845	430,327	5,817	322,332	1,451	5,804

-Continued-

Appendix B.7 (page 2 of 2)

Date	Water Level ^a	North Bank	Estimate		Daily	Cumulative	Escapement Objective		0600 Count	Projected Daily
			South Bank				Daily	Cumulative		
01-Jul	42.08	385	9,974		10,359	440,686	5,337	327,669	2,314	9,256
02-Jul	42.34	444	9,358		9,802	450,488	5,231	332,900	2,678	10,712
03-Jul	42.47	468	9,497		9,965	460,453	5,261	338,161	2,797	11,188
04-Jul	42.48	441	8,341		8,782	469,235	5,452	343,613	2,589	10,356
05-Jul	42.55	149	6,047		6,196	475,431	5,545	349,158	1,316	5,264
06-Jul	42.55	190	9,354		9,544	484,975	5,296	354,454	2,039	8,156
07-Jul	42.44	408	9,513		9,921	494,896	4,938	359,392	3,043	12,172
08-Jul	42.23	789	7,158		7,947	502,843	4,598	363,990	1,877	7,508
09-Jul	42.24	512	8,879		9,391	512,234	4,705	368,695	1,621	6,484
10-Jul	42.38	695	13,844		14,539	526,773	4,958	373,653	2,271	9,084
11-Jul	42.34	546	13,110		13,656	540,429	5,659	379,312	3,177	12,708
12-Jul	42.43	220	16,003		16,223	556,652	5,082	384,394	4,138	16,552
13-Jul	42.52	242	13,682		13,924	570,576	5,351	389,745	3,893	15,572
14-Jul	42.63	498	12,835		13,333	583,909	5,083	394,828	3,602	14,408
15-Jul	42.78	237	9,924		10,161	594,070	5,689	400,517	2,686	10,744
16-Jul	42.98	232	7,723		7,955	602,025	5,568	406,085	1,988	7,952
17-Jul	42.99	473	7,169		7,642	609,667	5,595	411,680	2,027	8,108
18-Jul	42.97	906	6,157		7,063	616,730	6,445	418,125	1,654	6,616
19-Jul	43.06	248	4,427		4,675	621,405	7,938	426,063	1,654	6,616
20-Jul	42.68	313	3,609		3,922	625,327	8,125	434,188	975	3,900
21-Jul	42.73	184	7,572		7,756	633,083	9,206	443,394	1,228	4,912
22-Jul	42.44	141 d	13,335		13,476	646,559	8,240	451,634	3,778	15,112
23-Jul	42.21		14,447		14,447	661,006	6,029	457,663	4,098	16,392
24-Jul	42.13		10,424		10,424	671,430	4,386	462,049	1,787	7,148
25-Jul	42.26		13,043		13,043	684,473	6,372	468,421	5,017	20,068
26-Jul	42.40		5,897		5,897	690,370	5,464	473,885	2,356	9,424
27-Jul	42.68		4,888		4,888	695,258	5,110	478,995	1,927	7,708
28-Jul	42.76		5,467		5,467	700,725	5,228	484,223	2,003	8,012
29-Jul	42.83		3,996		3,996	704,721	5,329	489,552	1,096	4,384
30-Jul	42.94		3,156		3,156	707,877	2,763	492,315	440	1,760
31-Jul	43.28		3,686		3,686	711,563	2,130	494,445	801	3,204
01-Aug	42.96		4,014		4,014	715,577	1,863	496,308	683	2,732
Total		38,086	677,491		715,577					

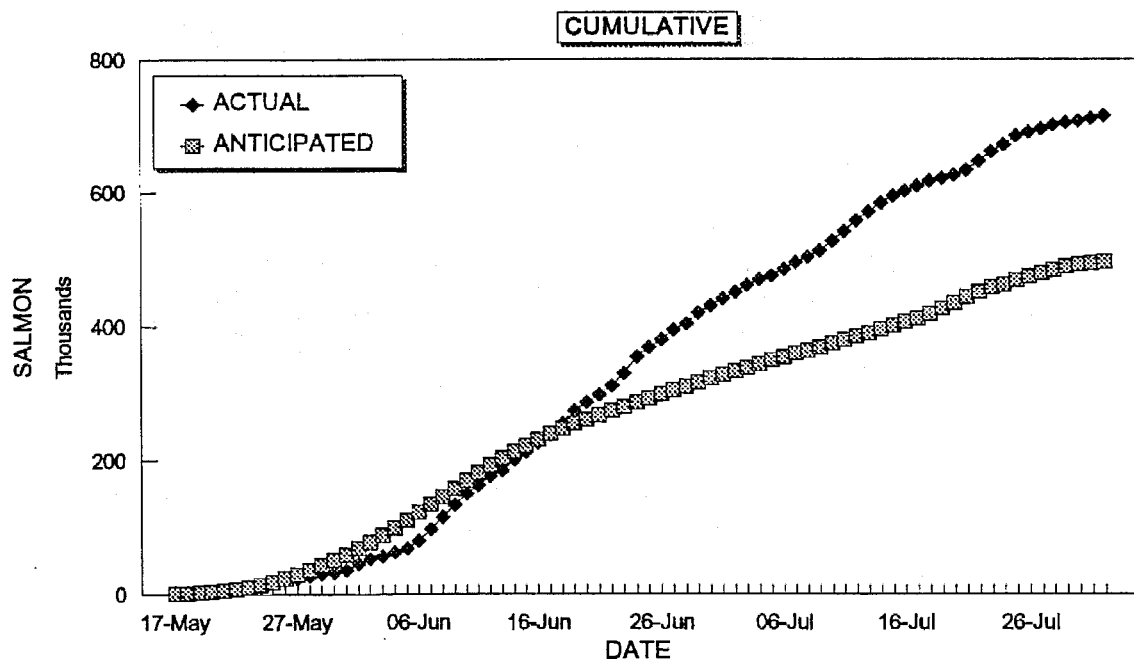
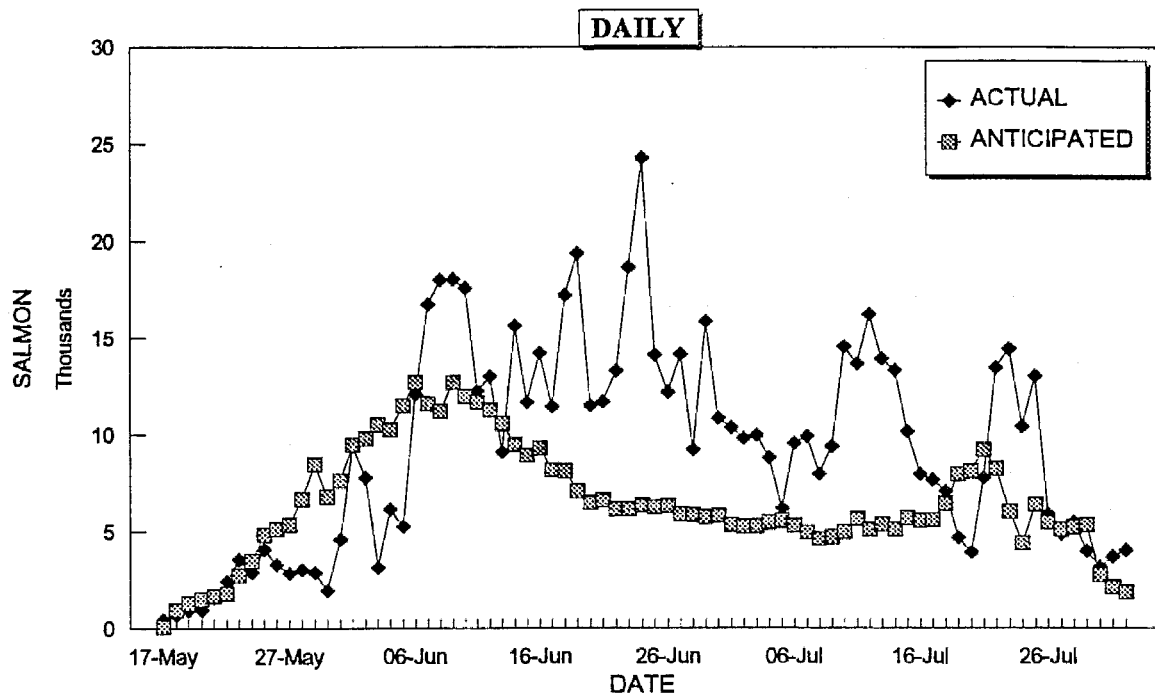
a Meters above sea level.

b North bank counts are derived from an average of five percent of north bank counts versus south bank counts based on past performance from 1988-1993.

c South bank transducer was deployed on the permanent substrate at midnight.

d North banks counter was pulled at 12:00 midnight.

1994 MILES LAKE SONAR COUNTS



Appendix B.8. Anticipated and actual daily and cumulative salmon escapement estimates, Miles Lake sonar, 1994.

Appendix B.9. Aerial escapement indices by date and location for sockeye salmon returning to the Copper River Delta, 1994.

Copper River Delta System and Drainage	Survey System	Aerial Escapement Indices by Survey Date						
		6 June	13 June	20 June	23 June	28 June	5 July	11 July
Eyak River	Eyak River	30 +	NS	NS	800 +	NS	700	4,000 +
	West Shore Beaches	20 *	20	NC	20	650	675	1,500
	East Shore Beaches	0	0	0	600	100 +	1,800	3,000
	Middle Arm Beaches	80	80	220 *	175	500	360	750
	North Shore Beaches	NS	NS	0	0	NC	150	500
	Hatchery Creek Delta	NS	NS	200	NC	800	1,200	1,400
	Hatchery Creek	NS	NS	40	70	50	100	800
	Power Creek Delta	NS	NS	NS	NC	0	0	600
	Power Creek	NS	NS	NS	NS	NS	NS	NS
Ibek Creek	Ibek Creek	NS	NS	NS	NS	NS	NS	NS
Alganik Slough	Alganik Slough	NS	NC	NS	NS	NS	NS	NS
	McKinley Lake	0	0	0	0	900	2,600	10,600
	Salmon Creek West Fork	NS	NS	0	NS	0	100	100
	Salmon Creek East Fork	NS	NS	NS	NS	NS	NS	0
26/27 Mile Creek	26/27 Mile Creek	0	0	250	100	800	2,700	3,000
39 Mile Creek	39 Mile Creek	NS	NS	0	0	20	300	3,200
Goat Mountain Creek	Goat Mountain Creek	NS	NS	0	0	0	NC	0
Pleasant Creek	Pleasant Creek	NS	NS	100	300	210 +	300 +	1,400 *
Martin River	Martin River - Lower	700	670	980	400	870	1,080	2,900 *
	Ragged Point River	NS	0	0	0	0	0	0
	Ragged Point Lake Outlet	NS	NS	NS	NS	NS	NS	0
	Ragged Point Lake	NS	NS	NS	NS	NS	NS	0
	Martin River - Upper	200	380	620	1,300	1,100	700	1,800 *
	Martin Lake Outlet	0	4,000	300	2,000	500	460	1,100 *
	Martin Lake	0	300	1,020	1,600	4,600	2,450	12,000 *
	Martin Lake Feeders	NS	NS	0	0	0		0
	Pothole River	NS	NS	NS	0	0	200	950 *
	Pothole Lake	NS	NS	NS	NS	NS	20	0
	Little Martin Lake Outlet	NS	NS	0	100	10	120	60 *
	Little Martin Lake	NS	NS	0	0	400	1,000	1,700 *
	Tokun Springs	NS	NS	0	0	150	NC	600
	Tokun River	NS	NS	100	200	430	725	400
	Tokun Lake Outlet	NS	NS	0	100	0	0	200
	Tokun Lake	NS	NS	40	60	100	500	900
Martin River Slough	Martin River Slough	0	0	3,000	4,500	5,000	5,025	5,850 *
Copper River Aerial Survey Daily Total		1,030	5,450	6,870	12,325	17,190	23,265	59,310
Anticipated Escapement		3,206	7,963	20,079	20,079	26,600	41,000	45,500

-Continued-

Copper River Delta		Aerial Escapement Indices by Survey Date						
System and Drainage	Survey System	17 July	25 July	4 August	11 August	16 August	22 August	28 August
Eyak River	Eyak River	4,700	2,500	2,000	500	350	1,000 *	0
	West Shore Beaches	3,000	4,100	2,500	1,500	1,400	1,200 *	600
	East Shore Beaches	1,400	1,700	3,400	5,400	5,500	5,300 *	3,300
	Middle Arm Beaches b	1,100	2,300	2,800	2,300	2,800	4,500 *	5,800
	North Shore Beaches	1,400	700	520	NC	300	5,800 *	NC
	Hatchery Creek Delta	700	1,400	150	NC	1,000	2,000 *	NC
	Hatchery Creek	1,300	700	500	350	1,100	800 *	NC
	Power Creek Delta	700	0	NC	NC	NC	400 *	NC
	Power Creek	NS	NS	NS	NS	NS	100 *	NC
Ibek Creek	Ibek Creek	NS	NS	NS	NS	NS	250	50
Alganik Slough	Alganik Slough	NS	NS	NS	0	0	0	0
	McKinley Lake	12,000	12,700 *	8,300	6,250	5,400	5,100	1,600
	Salmon Creek West Fork	50	320 *	2,700	3,700	3,800	3,400	2,000
	Salmon Creek East Fork	0	100 *	920	250	220	450	600
26/27 Mile Creek	26/27 Mile Creek	4,900 *	2,500	1,700	910	1,900	1,000	1,200
39 Mile Creek	39 Mile Creek	4,700	3,200	7,000 *	NC	6,200	5,000	3,000
Goat Mountain Creek	Goat Mountain Creek	0	350	200 +	600 +	NC	350	NC
Pleasant Creek	Pleasant Creek	800	NS	NS	NS	0	0	0
Martin River	Martin River - Lower	1,100	500	230	460	300	50	0
	Ragged Point River	330	1,400	1,800	1,000	1,000	1,200	1,100
	Ragged Point Lake Outlet	0	150	500	500	0	0	0
	Ragged Point Lake	0	150	1,200	1,100	3,100	3,500	3,000
	Martin River - Upper b	2,400	700	1,400	1,300	1,000	900	700
	Martin Lake Outlet	200	350	280	550	800	100	0
	Martin Lake	5,300 +	1,060	2,200	4,500	3,500	2,560	1,600
	Martin Lake Feeders	2,300	3,400	3,200	3,000	1,200	800	0
	Pothole River	1,300	300	500	300	200	300	300
	Pothole Lake	0	100	0	0	0	200	2,100
	Little Martin River	0	0	0	0	0	300	10
	Little Martin Lake	2,300	1,200	1,100	1,150	500	525	1,200
	Tokun Springs	700	550	700	300	300	200	0
	Tokun River	300	550	720	450	300	350	270
	Tokun Lake Outlet	NC	600	0	0	0	0	0
	Tokun Lake	NC	300	400	300	100	400	1,300
Martin River Slough	Martin River Slough	NC	2,200	1,960	NS	780	400	200
Copper River Aerial Survey Daily Total		52,980	46,080	48,880	36,670	43,050	48,435	29,930
Anticipated Escapement		41,250	53,400	53,900	34,500	41,500	43,620	32,885

-Continued-

Copper River Delta System and Drainage	Survey System	Aerial Escapement Indices by Survey Date				Estimated Escapement		
		2 Sept.	8 Sept.	28 Sept.	14 Oct.	Site	System	Anticipated
Eyak River	Eyak River	0	0	NC	0	1,000	21,340	14,500
	West Shore Beaches	500	900	60	0	1,220		
	East Shore Beaches	1,600	4,000	200	0	5,300		
	Middle Arm Beaches	3,500	5,000	1,200	180	4,720		
	North Shore Beaches	NC	500	600	0	5,800		
	Hatchery Creek Delta	400	1,100	0	0	2,000		
	Hatchery Creek	1,000	600	600	20	800		
	Power Creek Delta	NC	200	0	0	400		
	Power Creek	NS	150	200	0	100		
Ibek Creek	Ibek Creek	NS	NS	800	0	800		
Alganik Slough	Alganik Slough	0	0	0	0		13,120	13,800
	McKinley Lake	2,600	2,100	400	NS	12,700		
	Salmon Creek West Fork	2,500	2,700	400	NS	320		
	Salmon Creek East Fork	400	200	100	NS	100		
26/27 Mile Creek	26/27 Mile Creek	1,000	550	200	0	4,900	4,900	3,650
39 Mile Creek	39 Mile Creek	2,800	3,750	1,500	200	7,000	7,000	9,400
Goat Mountain Creek	Goat Mountain Creek	NC	NS	100	0	600	600	1,000
Pleasant Creek	Pleasant Creek	NS	0	0	NS	1,400	1,400	950
Martin River	Martin River - Lower	30	100	NS	0	2,900	20,510	29,800
	Ragged Point River	700	1,000	100	0	0		
	Ragged Point Lake Outlet	0	0	100	0	0		
	Ragged Point Lake	2,400	2,700	800	150	0		
	Martin River - Upper	800	1,500	NC	0	1,800		
	Martin Lake Outlet	0	0	NC	0	1,100		
	Martin Lake	1,200	3,300	835	1,400	12,000		
	Martin Lake Feeders	20	100	NS	20	0		
	Pothole River	200	200	100	0	950		
	Pothole Lake	1,500	1,400	1,830	200	0		
	Little Martin River	10	0	0	0	60		
	Little Martin Lake	1,300	900	200	0	1,700		
	Tokun Springs	150	*	300	0	150	2,850	9,350
	Tokun River	250	*	450	0	250		
	Tokun Lake Outlet	50	*	0	0	50		
	Tokun Lake	2,400	*	1,900	800	2,400		
Martin River Slough	Martin River Slough	100	120	0	0	5,850	5,850	6,600
Copper River Aerial Survey Daily Total		27,410	35,720	11,175	2,220		77,570	
Anticipated Escapement Index		32,800	29,400	13,050	NA			89,050

-Continued-

- a The survey sites represent most of the known sockeye salmon spawning locations in the Copper River Delta drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, time for spawning sites and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks but they have been for the purpose in the absence of any other escapement estimating method. The abbreviations used in the following table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. The + sign after some counts indicates that the count is the minimum estimate seen in less than ideal conditions. The symbol * indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote b).
- b The sites typically have very protracted run timing or two temporally segregated spawning populations at the same sites. Aerial counts from more than one day may be astricted and used in the escapement estimate if the surveyor indicates that these counts represented different fish.
- c The escapement estimates for each site is in the astricted survey estimate. Where the survey site is a terminal spawning area the peak count is used however, if the site is a schooling area for migratory fish bound for sites further upstream the count which minimizes possible duplication counts across dates selected.
- d This stream is not included in the estimated escapement delta wide, it is a non-index stream.

Appendix B.10. Copper River and Bering River area sockeye salmon escapement estimates, 1986 - 1994.^a

Stream/Lake ^b	1986	1987	1988	1989	1990	1991	1992	1993	1994
Eyak Lake	2,960	7,420	6,775	4,110	8,270	20,640	21,470	16,400	18,040
Hatchery Creek	650	1,975	1,225	1,150	2,800	5,100	2,200	1,100	2,800
Power Creek	0	0	350	0	205	1,870	1,420	700	500
Ibek Creek	0	0	0	120	160	120	40	glacial	800
McKinley Lake	12,000	10,300	9,700	6,300	1,400	2,000	10,300	7,700	12,700
Salmon Creek	900	2	100	630	2,000	3,330	25	3,000	420
26/27 Mile Creek	2,030	4,100	2,105	3,020	3,360	3,900	1,420	1,625	4,900
39 Mile Creek	9,500	6,100	3,620	7,420	5,000	5,340	4,500	4,000	7,000
Goat Mountain	600	1,000	220	3,150	420	20	620	NC	600
Pleasant Creek	1,000	1	460	990	3,190	1,495	1,567	2,270	1,400
Martin River	2,875	1,480	0	0	350	2,045	1,400	1,500	4,700
Ragged Pt. R./Lake	3,900	4,100	2,060	4,420	8,950	5,900	2,600	1,325	0
Martin Lake	11,200	6,010	6,440	7,850	11,250	10,700	14,000	6,700	13,100
Pothole Lake	2,200	910	2,785	1,550	2,190	5,200	1,300	700	950
L. Martin Lake	1,500	3,320	2,200	3,030	5,700	11,700	1,780	1,900	1,760
Tokun Lake/River	16,000	8,080	12,160	4,950	4,200	5,960	8,230	3,400	2,850
Martin River Slough	7,980	5,900	3,115	3,010	13,900	5,180	3,955	5,400	5,850
Copper Delta Total	75,295	60,698	53,315	51,700	73,345	90,500	76,827	57,720	78,370
Upper Copper R. ^c	509,275	483,478	488,398	607,869	581,859	579,412	601,952	833,387	715,577
Copper R. Dist. Tot.	584,570	544,176	541,713	659,569	655,204	669,912	678,779	891,107	793,947
Bering River/Lake	13,200	19,200	11,450	14,330	16,325	26,480	54,180	23,120	23,000
Shepherd Creek	3,600	4,100	950	340	1,260	3,400	1,200	3,100	1,400
Stillwater Cr.	1,350	2,000	100	250	700	1,200	150	500	800
Kushtaka Lake	825	1,225	480	1,530	256	880	100	205	150
Katalla River			350	6,850	1,200	260	265	800	1,200
Bering R. Area Tot.	18,975	26,525	13,330	23,300	19,741	32,220	55,895	27,725	26,550
Copper/Bering Total	603,545	570,701	555,043	682,869	674,945	702,132	734,674	918,832	820,497

- ^a The escapement figures in this table are based on peak aerial survey estimates and sonar counts from a majority of known salmon spawning areas in the Copper and Bering River Delta. These indices are not intended to provide a true estimate of total escapement for the coastal stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimates across years.
- ^b The areas in this table represent combined survey sites corresponding to the "system" designations for the current year survey results presented elsewhere in this report.
- ^c Upriver escapement estimate from Miles Lake sonar counts.

Appendix B.11. Aerial survey indices of sockeye salmon escapement to the Upper Copper River drainage, 1983 - 1994. ^a

Location	Yearly Survey Indices												10 Year Average
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993 c	1994 c	1983-92
Fish Lake	5,500	10,950	3,750	8,750	9,530	6,800	6,700	3,600	4,350	4,250			6,418
Bad Crossing #1&2	2,000	760	1,125	5,300	2,575	2,075	3,025	5,050	2,625	500			2,604
Suslota Lake	5,600	700	2,200	1,300	970	550	525	750	210	1,350			1,416
Dickey Lake	135	105	290	43	360	57	28	28	56	46			115
Keg Creek	620	2,505	825	200	400	360	1,450	160	95	630			725
Mahlo Creek	2,400	4,300	575	1,750	2,350	3,900	4,600	2,600	3,750	250			2,648
St. Anne Creek	9,700	10,300	1,250	4,600	6,980	6,100	3,100	1,700	4,700	450			4,888
Fish Cr.-Mentasta	900	900	1,800	1,100	250	650	1,500	1,000	1,050	480			963
Swede Lake	550	2,400	250	385	113	230	275	120	110	875			531
Tana River	2,485	3,665	1,145	1,825	472	2,034	245	89	750	740			1,345
Mentasta Lake	6,800	4,850	3,850	2,850	1,800	4,300	3,270	2,900	1,550	600			3,277
Tanada Lake	4,300	9,100	5,900	3,960	4,950	2,100	2,550	1,650	1,725	2,250		6,270	3,849
Salmon Creek	1,550	1,350	575	300	1,150	700	425	350	350	1,500			825
Paxson Init-Mud Cr	7,500	15,700	7,500	7,000	4,250	6,350	3,200	2,850	4,800	6,450			6,560
Mud Creek and Lake	470	270	200	70	0	150	0	35	100	425			172
Mendeltna Creek	2,850	1,900	2,300	3,325	2,275	1,550	2,000	3,700	3,050	1,750			2,470
Paxson Lake Outlet	3,300	4,100	3,600	1,810	5,100	3,200	900	1,350	2,300	950			2,661
Mud Cr.- Summit L.	5,700	9,600	8,150	3,375	9,050	15,400	6,800	2,950	9,625	3,800			7,445
Long Lake	5,600	1,360	590	1,300	1,225	1,125	1,225	1,950	1,919 b	1,050			1,577
Tonsina Lake	2,850	975	290	350	740	650	2,450	1,450	770 b	1,350			1,080
Totals	70,810	85,790	46,165	49,593	54,540	58,281	44,268	35,282	43,885	29,696			51,831

^a The escapement figures in this table are based on peak aerial survey estimates and weir counts from a majority of the known salmon spawning areas in the upper Copper River drainage. These indices are not intended to provide a true estimate of total escapement for these stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimate across years, however counts were obtained only as environmental conditions allow and may not necessarily correspond to periods of peak abundance. Missing counts are generally a result of bad weather, high water, turbulence or other factors that prevent surveys for that given year.

^b No survey flown, counts are the historical average.

^c No surveys were flown during 1993 or 1994.

Appendix B.12. Aerial survey indices of chinook salmon escapement to the upper Copper River, 1984 - 1994. ^a

Location	Yearly Survey Indices										10 Year Average 1983- 1992	
	1984	1985	1986	1987	1988	1989	1990	1991	1992 ^c	1993	1994	1992
East Fork Chistochina	577	360	618	764	684	740	615	865	88	^d	508	590
Gulkana River	2,189	321	3,182	1,228	967	1,993	1,356	1,303	656	1,156	1,682	1,466
Mendeltna Creek	26	26	76	10	17	185	320	305	83	126	121	116
Kiana Creek	382	91	328	80	249	344	411	520	79	65	430	276
St. Anne Creek	89	15	182	192	62	90	42	115	12	^d	250	89
Manker Creek	264	22	251	141	115	165	41	101	14	^d	75	124
Grayling Creek	279	58	224	112	161	72	49	151	17	^d	2	125
Little Tonsina River	568	203	424	247	75	65	57	54	107	^d	4	200
Indian River	17	14	29 ^b	33	0	3	15	18	1	^d	47	13
Total Survey Index	4,391	1,110	5,314	2,807	2,330	3,657	2,906	3,432	1,057	1,347	3,119	3,000

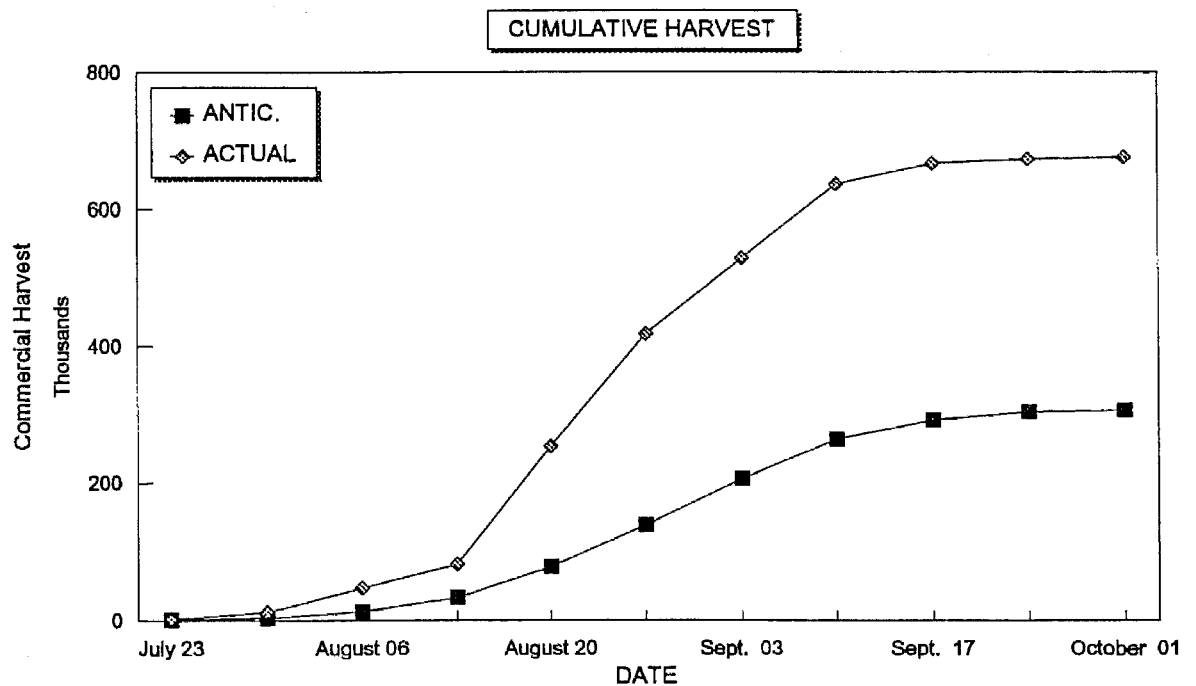
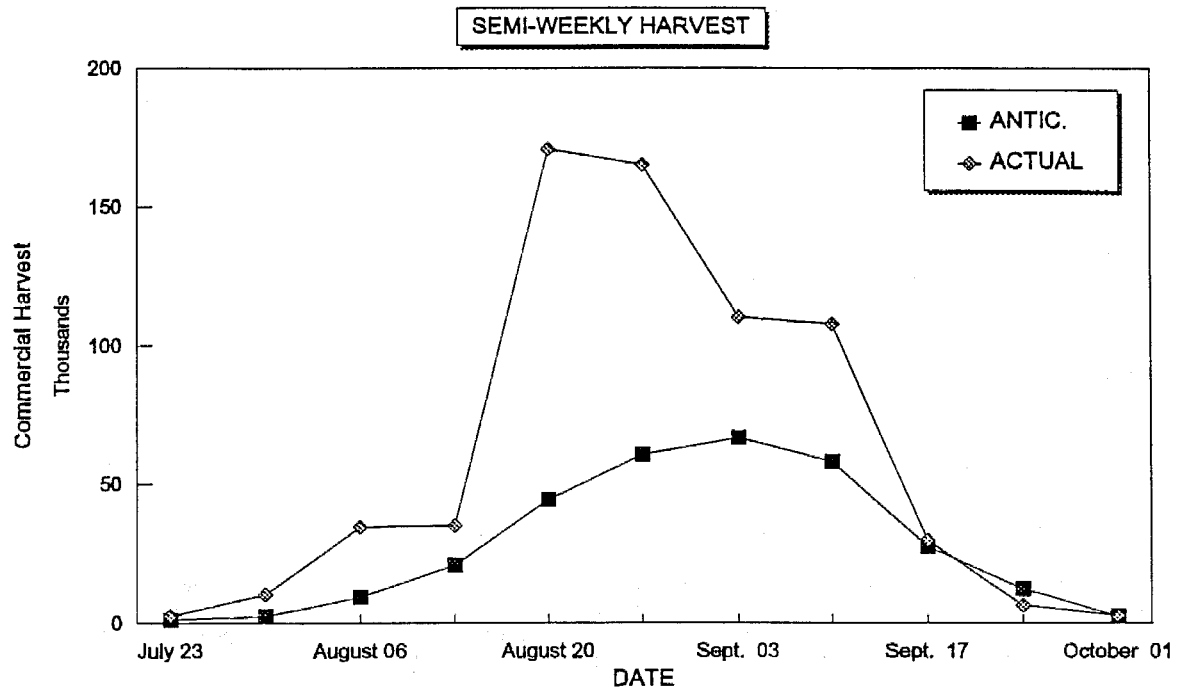
^a The escapement figures in this table are based on peak aerial survey estimates and weir counts from a majority of the known spawning areas in the upper Copper River drainage. These indices are not intended to provide a true estimate of total escapement for these stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimate across years, however counts were obtained only as environmental conditions allow and may not necessarily correspond to periods of peak abundance. Missing counts are generally a result of bad weather, high water, turbulence or other factors that prevented surveys for that given year.

^b Interpolated counts.

^c Due to poor weather conditions surveys were late for 1992; live and carcass counts were used.

^d No aerial surveys conducted in 1993.

COPPER RIVER DISTRICT COMMERCIAL COHO HARVEST



Appendix B.13. Anticipated and actual weekly and cumulative harvest of coho salmon in the Copper River drift gillnet fishery, 1994.

Appendix B.14. Aerial escapement indices by date and location for coho salmon returning to the Copper River Delta, 1994.

Copper River Delta ^a		Aerial Escapement Indices by Survey Date ^b							
System and Drainage	Survey System	11 August	16 August	22 August	28 August	02 Sept.	08 Sept.	28 Sept.	14 Oct
Eyak River	Eyak River	100	1,300	4,500	5,500	3,000	4,800 *	NC	30
	East Shore Beaches	0	50	1000	3,000	3,000	4,200 *	1,400	950
	West Shore Beaches	0	0	0	200	400	600 *	400	1,000
	Middle Arm Beaches	0	0	0	0	0	0 *	80	70
	North Shore Beaches	NC	50	100	NC	NC	300 *	500	750
	Hatchery Creek Delta	NC	0	0	NC	0	500 *	700	200
	Hatchery Creek	0	0	0	NC	0	200 *	700	500
	Power Creek Delta	NC	NC	0	NC	NC	400 *	800	1,100
	Power Creek	NS	NS	100	NC	NC	300 *	650	350
Ibek Creek	Ibek Creek	NS	NS	NC	NC	NC	400	2,500	3,060 *
Scott River	Scott River	NS	0	0	850	775	1600 *	300	940
	Elsner Lake	NS	NS	0	0	0	NS	5	100
	Scott Lake	NS	NS	0	0	0	0	0	0
Alganik Slough	Alganik Slough	NS	NS	NC	200	350	1,000 *	100	0
	18/20 Mile Creek	0	10	150	750	1,440	1,300	3,300 *	560
	McKinley Lake	0	0	300	900	600	1,100 *	300	40
	Salmon Creek West Fork	0	0	50	100	0	0 *	0	NS
	Salmon Creek East Fork	0	0	0	0	0	0 *	550	300
26/27 Mile Creek	26/27 Mile Creek	20	90	100	250	200	250	1,300 *	950
39 Mile Creek	39 Mile Creek	NC	200	1,200	2,300	1,100	4,150 *	3,700	1,300
Goat Mountain Cr.	Goat Mountain Creek	0	0	0	100	150	350	1,000 *	500
Pleasant Creek	Pleasant Creek	NS	0	0	0	0	45 *	0	NS
Martin River	Martin River - Lower	120	810	2,400	2,050	2,680	5,000 *	NS	25
	Ragged Point River	0	0	0	0	0	0 *	0	140
	Ragged Point Lake Outlet	0	0	0	0	0	0 *	0	10
	Ragged Point Lake	0	0	0	0	0	0 *	0	0
	Martin River - Upper	0	400	600	2,400	3,300	5,600 *	NC	470
	Martin Lake Outlet	0	0	0	0	0	0 *	NC	0
	Martin Lake	0	0	0	0	0	0 *	NC	0
	Martin Lake Feeders	0	0	0	0	0	0 *	NC	90
	Pothole River	0	0	0	0	0	0 *	0	300
	Pothole Lake	0	0	0	0	0	0 *	0	20
	Little Martin River	0	0	0	160	100	200 *	4,000	800
	Little Martin Lake	0	0	0	0	0	0 *	0	0
	Tokun Springs	0	0	300	250	400	100	900 *	250
	Tokun River	0	0	300	100	100	100	850 *	930
	Tokun Lake Outlet	0	0	0	0	0	0	30 *	0
	Tokun Lake	0	0	0	0	0	0	0 *	0
Martin River Slough	Martin River Slough	NC	280	750	3,180	3,250	5,120 *	3,720	2,100
Copper River Aerial Survey Daily Total		240	3,190	11,850	22,290	20,845	37,615	27,785	17,835
Anticipated Escapement ^b		1,310	3,830	15,550	18,900	18,900	27,100	33,100	NA

-Continued-

Copper River Delta System and Drainage	Survey System	Estimated Escapement		
		Site	System	Anticipated
Eyak River	Eyak River	4,800	11,300	6,100
	East Shore Beaches	4,200		
	West Shore Beaches	600		
	Middle Arm Beaches	0		
	North Shore Beaches	300		
	Hatchery Creek Delta	500		
	Hatchery Creek	200		
	Power Creek Delta	400		
	Power Creek	300		
Ibek Creek	Ibek Creek	3,060	3,060	6,600
Scott River	Scott River	1,600 ^a		
	Elsner Lake	NS ^a		
	Scott Lake	0 ^a		
Alganik Slough	Alganik Slough	1,000		
	18/20 Mile Creek	3,300	3,300	1,000
	McKinley Lake	1,100	2,100	2,500
	Salmon Creek West Fork	0		
	Salmon Creek East Fork	0		
26/27 Mile Creek	26/27 Mile Creek	1,300	1,300	400
39 Mile Creek	39 Mile Creek	4,150	4,150	3,800
Goat Mountain Cr.	Goat Mountain Creek	1,000	1,000	1,350
Pleasant Creek	Pleasant Creek	45 ^a		
Martin River	Martin River - Lower	5,000	10,600	5,700
	Ragged Point River	0	0	1,200
	Ragged Point Lake Outlet	0		
	Ragged Point Lake	0		
	Martin River - Upper	5,600		
	Martin Lake Outlet	0	0	1,950
	Martin Lake	0		
	Martin Lake Feeders	0		
	Pothole River	0	0	2,350
	Pothole Lake	0		
	Little Martin Lake Outlet	200	200	6,000
	Little Martin Lake	0		
	Tokun Springs	900	1,780	1,100
	Tokun River	850		
	Tokun Lake Outlet	30		
	Tokun Lake	0		
Martin River Slough	Martin River Slough	5,120	5,120	9,200
Copper River Aerial Survey Total			43,910	49,250
Anticipated Escapement ^b				

-Continued-

- a The survey sites represent most of the known coho salmon spawning locations in the Copper River Delta drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, time for spawning sites and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks but they have been for the purpose in the absence of any other escapement estimating method. The abbreviations used in the following table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. The + sign after some counts indicates that the count is the minimum estimate seen in less than ideal conditions. The symbol * indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote b).
- b For systems not flown on any given survey the expected for that system was subtracted from the total anticipated for that survey.
- c The escapement estimates for each site is in the astricted survey estimate. Where the survey site is a terminal spawning area the peak count is used however, if the site is a schooling area for migratory fish bound for sites further upstream the count which minimizes possible duplication counts across dates selected.
- d This stream is not included in the estimated escapement delta wide, it is a non-index stream.
- e The sum of the estimates by site within the index systems.

Appendix B.15. Copper River Delta and Bering River coho salmon escapement estimates, 1986 - 1994. ^a

Stream/Lake ^b	1986	1987	1988	1989	1990	1991	1992	1993	1994
Eyak Lake	2,550	2,800	3,250	1,925	5,775	7,170	5,710	NC ^d	9,900
Hatchery Creek	400	850	100	400	1,940	0	1,100	NC ^d	700
Power Creek	0	4,800	350	0	650	0	1,000	NC ^d	700
Ibek Creek	4,200	3,100	2,400	4,330	3,950	13,540	9,600	NC ^d	3,060
Scott & Elsner River ^c			1,060	510	1,105	700	550	1,580	1,600
18/20 Mile			1,075	1,000	630	4,200	915	1,750	3,300
McKinley Lake	1,600	10	170	800	375	100	800	700	2,100
Salmon Creek	200	0	1,925	1,990	1,970	1,770	0	1,400	0
26/27 Mile	60	350	105	810	860	300	475	1,500	1,300
39 Mile	5,800	2,800	1,390	2,150	2,230	2,100	1,900	1,600	4,150
Goat Mountain	100	520	1,500	2,500	1,340	1,900	480	650	1,000
Pleasant Cr. ^c	0	250	110	961	1	6	8	NS	45
Martin River	4,820	3,060	3,400	470	400	1,600	1,900	4,540	10,600
Ragged Pt. River/Lk.	30	3,330	1,080	3,600	820	450	310	300	0
Martin Lake	275	70	145	590	320	1,500	65	150	0
Pothole Lake	640	70	350	1,300	2,670	6,000	300	730	0
Little Martin Lake	275	560	4,500	7,200	7,400	11,360	10,800	6,400	200
Tokun River/Lake	490	495	600	2,870	2,250	2,800	510	950	1,780
Martin River Slough	4,350	3,400	4,110	7,960	7,700	8,860	8,140	11,200	5,120
Copper Delta Total	25,790	26,465	27,620	41,366	42,386	64,356	44,563	33,450	45,555

Katalla R.	1,800	1,600	560	1,220	2,960	4,000	2,760	4,400	4,500
Bering Lake	1,350	900	2,350	1,000	2,040	12,300	3,540	5,900	5,800
Dick Creek	350	50	105	570	1,500	1,220	1,250	200	100
Shepard Cr.	10	45	70	70	100	NS	NS	600	900
Nichawak R.	1,700	250	3,670	2,550	2,900	2,560	1,970	4,100	2,000
Gandii R.				1,410	910	1,460	600	1,250	950
Controller Bay	4,210	2,740	4,660	9,000	14,390	9,760	6,180	13,600	14,300
Bering Area Total	9,420	5,585	11,415	15,820	24,800	31,300	16,300	30,050	28,550

Copper/Bering Total	35,210	32,050	39,035	57,186	67,186	95,656	60,863	63,500	74,105
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- ^a The escapement figures in this table are based on peak aerial survey estimates counts from a majority of the known salmon spawning areas in the Copper and Bering River Delta. These indices are not intended to provide a true estimate of total escapement for the coastal stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimates across years, however counts were obtained only as environmental conditions allow and may not necessarily correspond to periods of peak abundance. Missing counts are generally a result of bad weather, high water, turbulence or other factors that prevent surveys for that given year.
- ^b The areas in this table represent combined survey sites corresponding to the "system" designations for the current year survey results presented elsewhere in this report.
- ^c Not an indexed stream.
- ^d Due to glacial water conditions these systems are listed as "NC" no count. See Appendix B.14. for weekly observations.

Appendix B.17.

Estimated age and sex composition of chinook salmon harvested in the Copper River District commercial common property drift gillnet fishery, 1994.

		Brood Year and Age Group									
		1991		1990		1989		1988		1987	
		0.2	1.1	1.2	0.4	1.3	1.4	2.3	1.5	2.4	Total
Strata Combined:	05/16 - 06/06										
Sampling dates:	05/16 - 06/04										
Sample size:	1,999										
Female	Percent of sample	0.0	0.0	2.0	0.1	26.2	32.2	0.1	0.1	0.2	60.9
	Number in catch	0	0	862	36	11,223	13,825	39	62	76	26,123
Male	Percent of sample	0.1	0.0	3.0	0.0	12.7	22.3	0.1	0.3	0.1	38.6
	Number in catch	39	13	1,280	0	5,447	9,563	36	129	59	16,565
Total	Percent of sample	0.1	0.0	5.0	0.1	39.0	54.8	0.2	0.4	0.3	100.0
	Number in catch	39	13	2,142	36	16,745	23,513	98	192	136	42,913
	Standard error	29	13	210	26	481	491	46	65	56	

Appendix B.18. Estimated age and sex composition of coho salmon harvested in the Copper River District commercial common property drift gillnet fishery, 1994.

		Brood Year and Age Group				
		1992	1991	1990	1989	Total
Strata Combined: 08/07 - 09/10		0.1	1.1	1.2	2.1	3.1
Sampling dates: 08/11 - 09/06						
Sample size: 1,230						
Female	Percent of sample	0.0	25.1	0.1	18.4	44.4
	Number in catch	0	143,544	500	105,103	253,932
Male	Percent of sample	0.1	33.7	0.0	21.0	55.6
	Number in catch	642	192,396	0	120,228	317,407
Total	Percent of sample	0.1	58.8	0.1	39.4	100.0
	Number in catch	642	335,940	500	225,331	571,339
	Standard error	642	8,020	500	7,978	1,950

Appendix B.19. Commercial salmon catch by species in the Bering River District,
1973-1994.

Year	Catch by Species					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1973	285	15,426	65,348	2	5	81,066
1974	32	4,208	28,615	7	2	32,864
1975	162	21,637	24,162	0	0	45,961
1976	228	30,908	42,423	43	1	73,603
1977	127	14,445	47,218	192	221	62,203
1978	331	33,554	91,097	266	2,391	127,639
1979	385	139,015	114,046	6,895	23,094	283,435
1980 ^a	0	0	108,872	0	0	108,872
1981	200	55,585	82,626	9,882	8,307	156,600
1982	254	129,667	144,752	47	333	275,053
1983	610	179,273	117,669	851	4,615	303,018
1984	330	91,784	214,632	309	20,408	327,463
1985	215	26,561	419,276	214	9,642	455,908
1986	128	19,038	115,809	15	243	135,233
1987	34	16,926	15,864	54	7	32,885
1988	19	7,152	86,539	23	181	93,914
1989	30	9,225	26,952	7	2	36,216
1990	14	8,332	42,952	2	1	51,301
1991	28	19,181	110,951	4	195	130,359
1992	21	19,721	125,616	4	1	145,363
1993	130	33,951	115,833	82	22	150,018
1994	121	27,926	259,003	34	63	287,147
Ten Year						
Average	95	25,187	127,442	71	3,070	155,866
(1984-93)						

^a In 1980 no fishing was allowed prior to August 11.

Appendix B.20. Commercial salmon harvest by period in the Bering River District drift gillnet fishery, 1994.

Period	Date ^a	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pound	Number	Pound	Number	Pound	Number	Pound	Number	Pound
1	6/13	24	18	28	62	1,364	3,190	18,618	0	0	1	3	15	117
2	6/16	24	26	35	29	681	7,086	41,534	0	0	0	0	0	0
3	6/20	24	23	40	13	297	5,820	33,250	0	0	0	0	24	191
4	6/23	24	21	32	7	178	3,506	19,871	5	37	0	0	14	92
5	6/27	36	6	13	4	122	3,232	18,139	0	0	0	0	0	0
6	6/30	24	4	6	1	35	980	5,536	3	21	0	0	7	49
7	7/04	24	3	4	0	0	666	3,863	0	0	0	0	0	0
8	7/07	24	4	6	1	45	1,143	6,863	0	0	0	0	1	10
9	7/11	36	3	6	0	0	936	5,555	0	0	0	0	0	0
10	7/14	36	3	3	0	0	374	2,242	0	0	0	0	0	0
11	7/18	48	0	0	0	0	0	0	0	0	0	0	0	0
12	7/21	48	0	0	0	0	0	0	0	0	0	0	0	0
13	7/25	48	0	0	0	0	0	0	0	0	0	0	0	0
14	7/28	48	c											
15	8/01	48	0	0	0	0	0	0	0	0	0	0	0	0
16	8/04	36	0	0	0	0	0	0	0	0	0	0	0	0
17	8/08	48	c											
18	8/15	48	17	42	2	26	332	1,852	12,931	108,210	4	12	0	0
19	8/19	12	42	54	0	0	81	514	9,034	90,250	1	3	1	6
20	8/22	30	67	161	0	0	51	318	37,845	357,262	3	12	0	0
21	8/25	48	95	249	0	0	63	405	41,306	403,178	1	3	0	0
22	8/29	102	140	626	0	0	31	187	78,312	806,284	3	12	0	0
23	9/05	132	136	655	1	22	71	488	60,019	628,022	2	12	0	0
24	9/11	168	65	227	0	0	23	148	18,358	198,963	1	3	0	0
25	9/18	168	11	15	0	0	0	0	308	3,363	0		0	0
26	9/25	168	c											
27	10/02	168	c											
28	10/09	168	0	0	0	0	0	0	0	0	0	0	0	0
28	10/16	168	0	0	0	0	0	0	0	0	0	0	0	0
Total			181	2,210	121	2,787	27,926	161,311	259,003	2,602,040	34	114	63	473
Average Weight (lbs)						23.03		5.78		10.05		3.35		7.51

a For starting times of specific openings refer to Appendix B.26

b Starting date of period.

c Confidentiality fisheries information; less than the required three permits fishing in a statistical area.

Appendix B.21. Aerial escapement indices by date and location for sockeye salmon returning to the Bering River Delta, 1994.

Bering River Delta		Aerial Escapement Indices by Survey Date						
System and Drainage	Survey System	6 June	20 June	28 June	05 July	11 July	17 July	25 July
Bering River	Bering River	NC	NS	710	NS	1,000 *	NC	200
	Bering Lake	NC	NC	0	16,160	20,200 *	10,800 +	13,460
	Dick Creek	NS	0	0	0	1,800 *	6,200 +	7,500
	Shepherd Creek - Lagoon	NC	NS	10	150	0	600 +	100
	Shepherd Creek	NS	NS	NS	NS	NS	NS	500
	Carbon Creek	NS	NS	NS	NS	NS	NS	100
	Trout Creek	NS	NS	NS	NS	NS	NS	NS
	Clear Creek	NS	NS	NS	NS	NS	NS	500
	Kushtaka Lake	NS	NS	NS	NS	NS	0	100
	Shockum Creek	NS	NS	NS	NS	NS	0	0
Kattalla River	Kattalla River	NS	NS	100 +	NC	1,200 *	NC	900
Bering River Aerial Survey Daily Index		0	0	820	16,310	24,200	17,600	23,360
Anticipated Escapement Index		NA	6,000	14,047	24,000	24,700	24,700	21,400

Bering River Delta		Aerial Escapement Indices by Survey Date						
System and Drainage	Survey System	4 August	11 August	16 August	22 August	28 August	2 Sept.	8 Sept.
Bering River	Bering River	660	700	400	700	60	100	100
	Bering Lake	5,500	4,620	1,720	1,450	1,600	700	350
	Dick Creek	9,800	9,400	4,900	2,100	1,450	2,100	1,700
	Shepherd Creek - Lagoon	0 *	NS	0	NS	0	0	0
	Shepherd Creek	1,000 *	NS	NS	NS	NS	NS	NS
	Carbon Creek	400 *	NS	NS	NS	NS	NS	NS
	Trout Creek	NS	NS	NS	NS	NS	NS	NS
	Clear Creek	NS	800	NS	NS	NS	NS	NS
	Kushtaka Lake	100	150	NS	NS	NS	NS	NS
	Shockum Creek	20	NC	NS	NS	NS	NS	NS
Kattalla River	Kattalla River	250	NS	200	150	0	100	200
Bering River Aerial Survey Daily Index		17,730	15,670	7,220	4,400	3,110	3,000	2,350
Anticipated Escapement Index		22,100	8,000	3,500	900	1,170	1,180	900

-Continued-

Bering River Delta ^a		Aerial Escapement Indices by Survey Date		Estimated Escapement		
System and Drainage	Survey System	28 Sept	14 Oct	Site ^b	System ^c	Anticipated
Bering River	Bering River	NC	20	1,000	23,000	23,500
	Bering Lake	50	0	20,200		
	Dick Creek	600	0	1,800		
	Shepherd Creek - Lagoon	0	NS	0	1,400	6,000
	Shepherd Creek	NS	NS	1,000		
	Carbon Creek	NS	NS	400		
	Trout Creek	NS	NS	0		
	Clear Creek	NS	NS	800	800	1,500
	Kushtaka Lake	NS	NS	150	150	1,600
	Shockum Creek	NS	NS			
Kattalla River	Katalla River	50	0	1,200	1,200	
Bering River Aerial Survey Daily Index		700	20		26,550	32,600
Anticipated Escapement Index		20	NA			

a The survey sites represent most of the known sockeye salmon spawning locations in the Bering River drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, time for spawning sites and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks but they have been for the purpose in the absence of any other escapement estimating method. The abbreviations used in the following table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. The + sign after some counts indicates that the count is the minimum estimate seen in less than ideal conditions. The symbol * indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote b).

b The escapement estimates for each site is in the astricted survey estimate. Where the survey site is a terminal spawning area the peak count is used however, if the site is a schooling area for migratory fish bound for sites further upstream the count which minimizes possible duplication counts across dates selected.

c The sum of the estimates by site within a system.

Appendix B.22. Anticipated and actual weekly catch and escapement of coho salmon in the Bering River District drift gillnet fishery, 1994.

Week Ending Date	Fishing Time (Hrs.)	Coho		Coho Escapement	
		Actual Catch	Anticipated Catch ^a	Peak Aerial Index	Anticipated Peak Index ^b
Prior to July 30		8	392		
July 30	48 and 48	5	22		
Aug 06	48 and 36	No effort	88		
Aug 13	48	697	144	0	600
Aug 20	48 and 12	22,115	2,832	450	1,190
Aug 27	30 and 48	79,151	16,513	3,860	7,500
Sept 03	104	78,312	33,884	16,270	11,250
Sept 10	132	60,019	37,581	26,390	21,300
Sept 17	168	18,358	23,997	No survey	20,100
Sept 24	168	308	6,739	No survey	19,000
Oct 01	168	30	1,148	16,200	17,400
Oct 08	168	0	160	No survey	NA
Oct 15	168	0		1,385	NA
Oct 22	168	0			5,100
Season Total		259,003	123,500		23,000

^a Based on average historic catches for comparable dates (1969-1993).

^b Based on average historic aerial escapement surveys for comparable dates (1984 - 1992).

Appendix B.23. Aerial escapement indices by date and location for coho salmon returning to the Bering River Delta, 1994.

Bering River Delta a System and Drainage	Survey System	Aerial Escapement Indices by Survey Date						
		11 August	16 August	22 August	28 August	02 Sept.	08 Sept.	28 Sept.
Bering River	Bering River b	0	150	1,050	1,350	2,250	3,600 *	2,000
	Bering Lake	0	0	50	200	2,350	2,200 *	1,070
	Dick Creek	0	0	0	0	100	100 *	1,200
	Shepherd Creek - Lagoon	NS	0	NS	600	200	900 *	100
	Shepherd Creek	NS	NS	NS	NS	NS	NS	NS
	Carbon Creek	NS	NS	NS	NS	NS	NS	NS
Katalla River	Katalla River	0	200	300	2,700	3,200	4,500 *	1,970
Lower Bering River	Gandil River	NS	0	10	450	370	440	950 *
	Nichawak River	NS	100	700	800	1,200	1,050	2,000 *
Controller Bay	Campbell River	NS	NS	0	0	0	0	0
	Edwards River	NS	NS	750	800	2,600	2,700 *	1,500
	Okalee River	NS	NS	1,000	1,600	3,700	10,900 *	4,700
	Other Clear Streams	NS	NS	0	50	300	0	700 *
Bering River Aerial Survey Daily Index		0	450	3,860	8,550	16,270	26,390	16,190
Anticipated Escapement Index		600	1,190	7,500	11,250	11,250	21,300	17,400

Bering River Delta a System and Drainage	Survey System	Aerial Escapement Indices by Survey Date		Estimated Escapement		
		Oct 14		Site c	System d	Anticipated
Bering River	Bering River b	700		3,600	5,900	5,700
	Bering Lake	255		2,200		
	Dick Creek	230		100		
	Shepherd Creek - Lagoon	NS		900	900	
	Shepherd Creek	NS		NS		
	Carbon Creek	NS		NS		
Katalla River	Katalla River	200		4,500	4,500	4,000
Lower Bering River	Gandil River	NS		950	2,950	2,600
	Nichawak River	NS		2,000		
Controller Bay	Campbell River	NS		0	14,300	9,900
	Edwards River	NS		2,700		
	Okalee River	NS		10,900		
	Other Clear Streams	NS		700		
Bering River Aerial Survey Total		1,385			28,550	22,200
Anticipated Escapement Index		NA				

a The survey sites represent most of the known coho salmon spawning locations in the Bering River drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, time for spawning sites and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks but they have been for the purpose in the absence of any other escapement estimating method. The abbreviations used in the following table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. The + sign after some counts indicates that the count is the minimum estimate seen in less than ideal conditions. The symbol * indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote b).

b Bering River counts include coho observed in the Don Miller Hill tributaries.

c The escapement estimates for each site is in the restricted survey estimate. Where the survey site is a terminal spawning area the peak count is used however, if the site is a schooling area for migratory fish bound for sites further upstream the count which minimizes possible duplication counts across dates selected.

d The sum of the estimates by site within a system

Appendix B.24. Estimated age and sex composition of coho salmon harvested in the Bering River District commercial common property drift gillnet fishery, 1994.

Brood Year and Age Group						
		1991		1990		1989
		1.1	2.0	1.2	2.1	3.1
		Total				
<hr/>						
Strata Combined: 08/07 - 09/24						
Sampling dates: 08/25 - 09/07						
Sample size: 804						
♀ Female	Percent of sample	14.5	0.0	0.2	40.3	3.2
	Number in catch	33,898	0	529	94,049	7,459
Male	Percent of sample	10.1	0.2	0.0	30.2	1.2
	Number in catch	23,575	529	0	70,505	2,803
Total	Percent of sample	24.6	0.2	0.2	70.5	4.4
	Number in catch	57,474	529	529	164,554	10,263
Standard error		4,440	529	529	4,762	2,256
		Total				
		58.2				
		135,935				
		41.8				
		97,466				
		100.0				
		233,401				

Appendix B.25. Summary of periods, dates, hours fished, and emergency orders issued for the commercial salmon gillnet fisheries in the Bering River and Copper River District, 1994.

Bering River District (200)			Copper River District (212)			Emergency Orders Issued	
Periods	Dates	Hours Fished	Periods	Dates	Hours Fished		
			1	5/16 - 5/17	24	2-F-E-02-94	a
			2	5/20	12	2-F-E-03-94	
			3	5/23 - 5/24	24	2-F-E-04-94	
			4	5/26 - 5/27	24	2-F-E-05-94	
			5	5/30 - 5/31	36	2-F-E-06-94	
			6	6/02 - 6/03	24	2-F-E-07-94	
			7	6/06	12	2-F-E-09-94	
			8	6/10	12	2-F-E-11-94	
			9	6/13 - 6/14	24	2-F-E-12-94	
1	6/13 - 6/14	24	10	6/16 - 6/17	24	2-F-E-14-94	
2	6/16 - 6/17	24	11	6/20 - 6/21	24	2-F-E-17-94	
3	6/20 - 6/21	24	12	6/23 - 6/24	24	2-F-E-18-94	
4	6/23 - 6/24	24	13	6/27 - 6/28	36	2-F-E-20-94	
5	6/27 - 6/28	36	14	6/30 - 7/01	24	2-F-E-22-94	
6	6/30 - 7/01	24	15	7/04 - 7/05	24	2-F-E-27-94	
7	7/04 - 7/05	24	16	7/07 - 7/08	24	2-F-E-29-94	
8	7/07 - 7/08	24	17	7/11 - 7/12	36	2-F-E-32-94	
9	7/11 - 7/12	36				2-F-E-34-94	b
			18	7/14 - 7/16	36	2-F-E-35-94	
10	7/14 - 7/16	36	19	7/18 - 7/20	48		
11	7/18 - 7/20	48	20	7/21 - 7/23	48	2-F-E-44-94	
12	7/21 - 7/23	48	21	7/25 - 7/27	48		
13	7/25 - 7/27	48	22	7/28 - 7/30	48	2-F-E-52-94	
14	7/28 - 7/30	48	23	8/01 - 8/03	48		
15	8/01 - 8/03	48	24	8/04 - 8/06	36	2-F-E-61-94	c
16	8/04 - 8/06	36	25	8/08 - 8/10	48		
19	8/08 - 8/10	48	26	8/15 - 8/17	48	2-F-E-70-94	
20	8/15 - 8/17	48	27	8/19	12	2-F-E-74-94	d
21	8/19	12	28	8/22 - 8/23	30	2-F-E-77-94	
22	8/22 - 8/23	30	29	8/25 - 8/27	48	2-F-E-80-94	
23	8/25 - 8/27	48				2-F-E-86-94	e
			30	8/29 - 9/02	102	2-F-E-82-94	
24	8/29 - 9/02	102				2-F-E-83-94	f
			31	9/05 - 10/22	1128	2-F-E-88-94	
25	9/05 - 10/22	1128				2-F-E-91-94	g
						2-F-E-93-94	h

a The Copper River schedule is typically two 24-hour periods per week; from 7:00 a.m. Monday to 7:00 a.m. Tuesday, and from 7:00 p.m. Thursday to 7:00 p.m. Friday. All 12-hours periods will begin at 7:00 a.m.

b The Copper and Bering River Districts were extended an additional 12 hours for a total of a 36-hour period from 7:00 a.m. Monday to 7:00 p.m. Tuesday.

c All fishing periods after August 7 in the Copper and Bering River Districts will begin at 12:00 noon.

d The fishing period was modified to begin at 8:00 a.m.

e The Copper and Bering River Districts were extended an additional 18 hours for a total of a 48-hour fishing period.

f The Copper and Bering River Districts were extended an additional 54 hours for a total of a 102-hour fishing period.

g The Copper and Bering River Districts were extended for continuous fishing until further notice.

h The Copper and Bering River Districts closed for the 1994 season.

APPENDIX C

COGHILL AND UNAKWIK DISTRICTS

Appendix C.1. Commercial salmon harvest by statistical week in the Coghill District commercial drift gillnet and purse seine fisheries, P.W.S., 1994. The statistical weeks listed are those with active fishing participation.

		Chinook				Sockeye		Coho		Pink		Chum	
Stat	Week	Permits	Landings	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
GEAR: DRIFT GILLNET													
06/18	25b	278	1,045	213	2,835	83	523	30	123	45	160	154,757	1,404,971
06/25	26c	209	231	18	291	47	261	3	19	35	147	32,844	289,061
07/02	27c,d	268	600	26	370	1,020	6,143	9	86	294	987	126,764	1,066,069
07/09	28a,f,g	182	610	66	833	2,001	12,292	1	12	387	1,362	126,625	1,077,911
07/16	29g	118	358	53	732	2,896	18,010	29	239	696	2,184	67,894	566,244
07/23	30g,h	64	175	8	134	1,951	11,984	83	734	3,404	9,740	34,113	280,070
07/30	31h,i	52	74	6	77	748	4,468	86	708	4,969	15,445	10,753	85,764
08/13	33j,k	10	15	0	0	298	1,557	67	516	12,887	40,586	173	1,265
08/20	34k	1	1	0	0	26	130	9	66	1,261	3,782	10	72
08/27	35k,l	5	9	0	0	196	1,032	98	709	2,045	6,248	13	108
09/03	36i	39	160	0	0	2,743	14,042	12,523	99,245	32,269	96,805	198	1,394
09/10	37m	43	207	0	0	663	3,751	21,917	190,642	42	126	28	188
09/17	38n	31	119	0	0	238	1,634	11,252	116,257	0	0	9	58
09/24	39m,n	16	62	0	0	18	124	4,772	48,273	0	0	0	0
Total		332	3,666	390	5,272	12,928	75,951	50,879	457,629	58,334	177,572	554,181	4,773,175
Average Weight					13.52		5.87		8.99		3.04		8.61
GEAR: PURSE SEINE													
08/13	33j,k	66	158	8	121	4,894	29,101	704	5,932	1,374,554	4,354,364	1,591	12,568
08/20	34k	87	188	35	408	7,330	44,431	2,265	19,883	1,123,964	3,608,403	1,517	12,458
08/27	35k,j	65	137	7	92	6,628	40,953	9,463	84,187	782,060	2,503,241	431	3,337
09/03	36i	10	30	0	0	2,087	11,659	15,594	127,549	243,238	777,663	34	242
09/10	37m,n	2	2	0	0	121	689	2,491	20,749	14,944	51,297	2	14
Total		122	515	50	621	21,060	126,833	30,517	258,300	3,538,760	11,294,968	3,575	28,619
Average Weight					12.42		6.02		8.46		3.19		8.01
Combined Total		454	4,181	440	5,893	33,988	202,784	81,396	715,929	3,597,094	11,472,540	557,756	4,801,794
Average Weight					13.39		5.97		8.80		3.19		8.61

a Statistical week ending date.

b Openings included all waters of the Esther Subdistrict and, waters of the General District between the Esther Subdistrict Boundary in lower Esther passage and temporary markers located in the vicinity of Shoestring Cove at 60 50'75" N. latitude. The Noerenberg Hatchery Terminal Harvest Area was open. The Special Harvest Area of Lake Bay north of 60 47'36" N. latitude was closed.

c Openings on June 20 and 27 included all waters of the Esther Subdistrict and, waters of the General District between the Esther Subdistrict boundary in lower Esther passage and temporary markers located in the vicinity of Shoestring Cove at 60 50'75" N. latitude. The Noerenberg Hatchery Terminal Harvest Area and the Special Harvest Area of Lake Bay north of 60 47'36" N. latitude were closed.

d The opening on July 1 included all waters of the Esther Subdistrict and, waters of the General District between the Esther Subdistrict boundary in lower Esther passage and temporary markers located in the vicinity of Shoestring Cove at 60 50'75" N. latitude. The Noerenberg Hatchery Terminal Harvest Area opened for 12 hours. The Special Harvest Area of Lake Bay north of 60 47'36" N. latitude was closed. The waters of Esther Bay north of 60 48.1' N. latitude were also open for 12 hours.

e On July 4, waters within one nautical mile of Esther Island opened for a 6 hour period. The Noerenberg Hatchery Special Harvest Area also opened for 6 hours. Waters within 50 yards of the hatchery barrier seine were closed. The Noerenberg Hatchery Terminal Harvest Area and the waters of Esther Bay north of 60 48.1' N. latitude were open for 24 hours.

f The 60 mesh depth restriction remained in effect after 8:00a.m. July 3 until further notice.

-Continued-

- g On July 7, 11, 14 and 18 the Noerenberg Hatchery Special Harvest Area was opened for 6 hours. Waters within 50 yards of the hatchery barrier seine were closed. The Noerenberg Hatchery Terminal Harvest Area and the waters of Esther Bay north of 60 48.1' N. latitude were open for a 24 hour period.
- h On July 21 and 25, the Noerenberg Hatchery Special Harvest Area opened for 24 hours. Waters within 50 yards of the hatchery barrier seine were closed. The Noerenberg Hatchery Terminal Harvest Area and the waters of Esther Bay north of 60 48.1' N. latitude were also open for a 24 hour period.
- i The 60 mesh depth restriction was rescinded effective 8:00 a.m. July 25.
- j On August 9, waters within one nautical mile of Esther Island were open. The Terminal Harvest Area of Quillian Bay and the outer portion of Lake Bay were open south of 60 47.6' N. latitude. The Noerenberg Hatchery Special Harvest Area of Lake Bay north of 60 47.6' N. latitude was closed.
- k Openings August 11, 13, 15, 17, 19, 21 and 23 included waters within one nautical mile of Esther Island. The waters of Lake and Quillian Bays were closed inside of a line from Hodgkin Point to Esther Light.
- l On August 25, 28 and September 1, waters within one nautical mile of Esther Island were open. The Noerenberg Hatchery Terminal Harvest Area was open. Lake Bay north of 60 47.6' N. latitude was closed.
- m Effective 8:00 a.m. September 5, waters within one nautical mile of Esther Island were open until further notice. Effective 8:00 p.m. September 7, the Noerenberg Hatchery Terminal Harvest Area opened to a schedule of 8:00 a.m. Monday until 8:00 p.m. Friday until further notice.
- n The season officially closed at 8:00 p.m. October 7.

Appendix C.2. Commercial salmon catch by species in the Coghill District, Prince William Sound, 1975 - 1994.

CATCH BY SPECIES:						
Year	Chinook	Sockeye	Coho	Pink	Chum	Total
GEAR: DRIFT GILLNET						
1975	525	142,864	357	99,492	32,438	275,676
1976	102	54,334	72	53,219	89,170	196,897
1977	124	154,342	49	332,859	127,476	614,850
1978	469	193,899	64	49,527	110,679	354,638
1979	543	75,753	1,837	259,372	56,916	394,421
1980	107	56,957	1,053	355,684	68,071	481,872
1981	152	101,058	1,008	525,739	131,399	760,356
1982	127	929,965	213	181,925	252,077	1,364,307
1983	340	38,273	1,013	233,263	234,022	506,911
1984	396	94,956	563	897,496	264,878	1,258,289
1985	380	339,296	1,131	454,531	246,824	1,042,162
1986	617	381,565	789	68,887	218,971	670,829
1987	352	377,454	13,396	712,897	318,842	1,422,941
1988	501	82,294	41,307	1,314,061	346,388	1,784,551
1989	364	106,114	80,737	628,522	194,584	1,010,321
1990	126	11,988	128,605	1,907,510	301,209	2,349,438
1991	92	3,888	78,363	231,501	34,223	348,067
1992	242	57,919	86,782	167,384	182,433	494,760
1993	576	66,532	37,898	141,279	635,208	881,493
1994	390	12,928	50,879	58,334	554,181	676,712
Ten Year Average (1984-93)	365	152,201	46,957	652,407	274,356	1,126,285
GEAR: PURSE SEINE						
1975	246	4,985	30	145,155	2,561	152,977
1976	83	6,159	29	56,567	30,328	93,566
1977	40	15,436	50	230,215	37,102	283,843
1978	205	2,623	34	13,059	14,007	36,929
1979	692	3,047	55	38,560	5,709	48,063
1980	0	2,159	0	134,876	4,702	141,737
1981	1	1,997	0	34,083	23,378	59,459
1982	23	17,466	29	1,006,579	135,553	1,159,650
1983	0	175	16	41,048	8,958	50,197
1984	0	21	0	10,911	1,126	12,058
1985	85	10,757	112	69,242	19,330	99,526
1986	186	18,514	98	145,706	27,078	191,582
1987	58	38,899	1,956	865,671	59,252	965,836
1988	63	1,623	15,787	1,600,481	11,755	1,629,709
1989	61	2,030	39,484	3,296,965	124,639	3,463,179
1990	2	286	11,819	785,278	10,951	808,336
1991	11	1,562	621	1,980,074	11,519	1,993,787
1992	6	765	27,382	196,503	1,603	226,259
1993	46	6,250	1,760	352,468	3,645	364,169
1994	50	21,060	30,517	3,538,760	3,575	3,593,962
Ten Year Average (1984-93)	52	8,071	9,902	930,330	27,090	975,444
COMBINED GEARS						
1975	771	147,849	389	244,647	34,999	428,655
1976	185	60,493	101	110,186	119,498	290,463
1977	164	170,778	99	563,074	164,578	898,693
1978	675	203,522	98	62,586	124,686	391,567
1979	1,235	78,800	1,892	297,932	62,625	442,484
1980	107	59,116	1,053	490,560	72,773	623,609
1981	153	103,055	1,008	560,822	154,777	819,815
1982	150	947,431	242	1,188,504	387,630	2,523,957
1983	340	38,448	1,029	274,311	242,980	557,108
1984	396	94,977	563	908,407	266,004	1,270,347
1985	465	350,053	1,243	523,773	266,154	1,141,688
1986	803	400,079	887	214,593	246,049	852,411
1987	410	416,353	15,352	1,578,568	378,094	2,388,777
1988	564	83,917	57,094	2,914,542	358,143	3,414,260
1989	425	108,144	120,221	3,925,487	319,223	4,473,500
1990	128	12,274	140,424	2,692,788	312,160	3,157,774
1991	103	5,450	78,984	2,211,575	45,742	2,341,854
1992	248	58,684	114,164	363,887	184,036	721,019
1993	622	72,782	39,658	493,747	638,853	1,245,662
1994	440	33,988	81,396	3,597,094	557,756	4,270,674
Ten Year Average (1984-93)	416	160,271	56,859	1,582,737	301,446	2,101,729

Appendix C.3. Daily salmon escapement through the Coghill River weir, Prince William Sound, 1994.

Date	a		b							
	Sockeye		Pink		Chum		Coho		Chinook	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
06/10	0	0	0	0	0	0	0	0	0	0
06/11	0	0	0	0	0	0	0	0	0	0
06/12	0	0	0	0	0	0	0	0	0	0
06/13	0	0	0	0	0	0	0	0	0	0
06/14	0	0	0	0	0	0	0	0	0	0
06/15	0	0	0	0	0	0	0	0	0	0
06/16	0	0	0	0	0	0	0	0	0	0
06/17	3	3	0	0	0	0	0	0	0	0
06/18	2	5	0	0	0	0	0	0	0	0
06/19	3	8	0	0	0	0	0	0	0	0
06/20	1	9	0	0	0	0	0	0	0	0
06/21	2	11	0	0	0	0	0	0	0	0
06/22	5	16	0	0	0	0	0	0	0	0
06/23	6	22	0	0	0	0	0	0	0	0
06/24	0	22	0	0	0	0	0	0	0	0
06/25	6	28	0	0	0	0	0	0	0	0
06/26	8	36	2	2	0	0	0	0	0	0
06/27	3	39	1	3	0	0	0	0	0	0
06/28	7	46	2	5	0	0	0	0	0	0
06/29	12	58	1	6	0	0	0	0	0	0
06/30	6	64	0	6	0	0	0	0	0	0
07/01	16	80	0	6	0	0	0	0	0	0
07/02	13	93	0	6	0	0	0	0	0	0
07/03	19	112	0	6	0	0	0	0	0	0
07/04	9	121	0	6	0	0	0	0	0	0
07/05	35	156	3	9	0	0	0	0	1	1
07/06	5	161	2	11	0	0	0	0	0	1
07/07	6	167	0	11	0	0	0	0	3	4
07/08	12	179	2	13	0	0	0	0	0	4
07/09	18	197	3	16	0	0	0	0	1	5
07/10	11	208	0	16	0	0	0	0	1	6
07/11	10	218	0	16	0	0	0	0	1	7
07/12	8	226	1	17	0	0	0	0	0	7
07/13	32	258	3	20	0	0	0	0	0	7
07/14	36	294	2	22	0	0	0	0	0	7
07/15	10	304	1	23	0	0	0	0	0	7
07/16	5	309	2	25	0	0	0	0	1	8
07/17	33	342	1	26	0	0	0	0	1	9
07/18	58	400	13	39	0	0	0	0	0	9
07/19	208	608	11	50	1	1	0	0	0	9
07/20	10	618	1	51	0	1	0	0	0	9
07/21	129	747	10	61	4	5	0	0	0	9
07/22	158	905	18	79	3	8	0	0	3	12
07/23	78	983	7	86	3	11	0	0	1	13
07/24	71	1054	1	87	1	12	0	0	1	14
07/25	68	1122	5	92	0	12	1	1	0	14
07/26	59	1181	7	99	2	14	0	1	1	15
07/27	217	1398	9	108	3	17	0	1	0	15

-Continued-

Appendix C.3. (page 2 of 2)

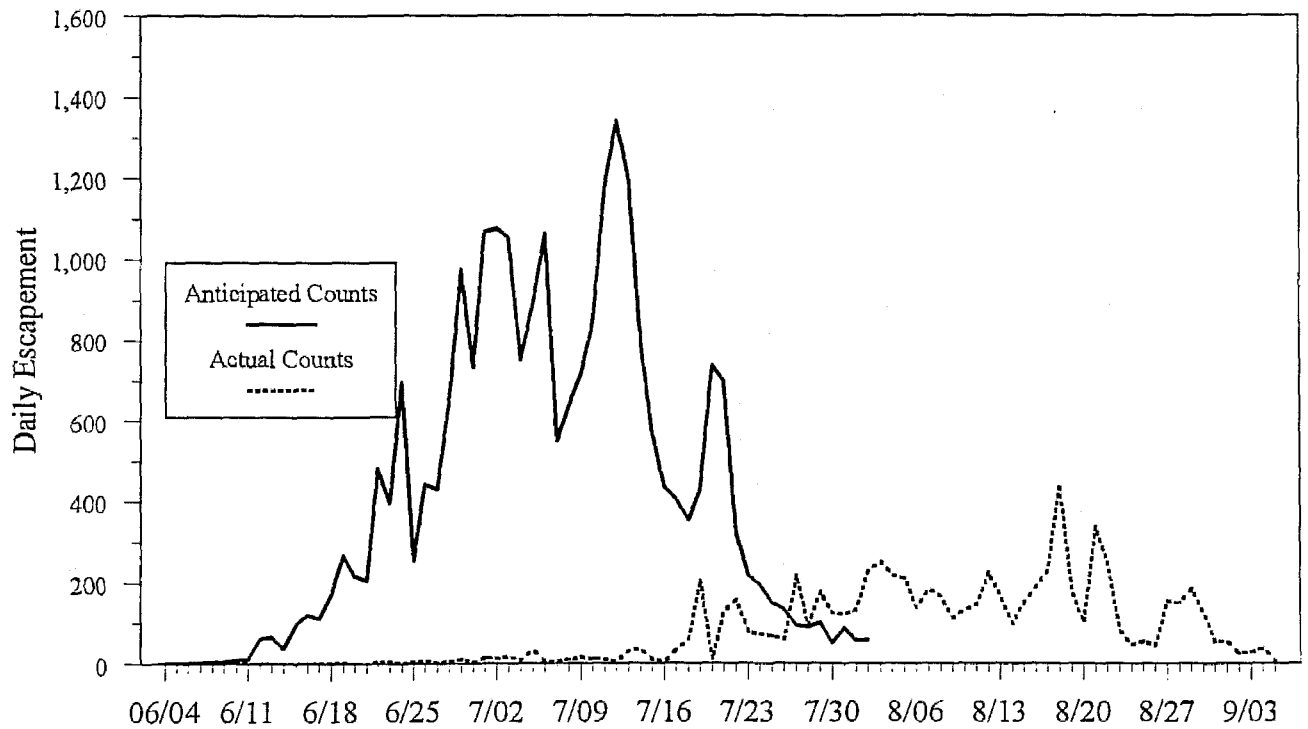
Date	Sockeye ^a		Pink ^b		Chum		Coho		Chinook	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
07/28	94	1492	6	114	1	18	0	1	0	15
07/29	177	1669	8	122	1	19	0	1	0	15
07/30	124	1793	15	137	2	21	2	3	2	17
07/31	122	1915	14	151	0	21	2	5	2	19
08/01	132	2047	25	176	0	21	1	6	0	19
08/02	229	2276	18	194	2	23	2	8	0	19
08/03	255	2531	22	216	4	27	1	9	0	19
08/04	218	2749	12	228	1	28	0	9	0	19
08/05	210	2959	18	246	2	30	1	10	0	19
08/06	138	3097	32	278	4	34	1	11	1	20
08/07	186	3283	29	307	3	37	5	16	0	20
08/08	167	3450	34	341	3	40	5	21	1	21
08/09	113	3563	17	358	0	40	1	22	0	21
08/10	132	3695	11	369	1	41	0	22	0	21
08/11	147	3842	16	385	1	42	1	23	2	23
08/12	226	4068	23	408	2	44	6	29	0	23
08/13	167	4235	15	423	2	46	2	31	0	23
08/14	97	4332	14	437	2	48	2	33	0	23
08/15	152	4484	20	457	0	48	5	38	0	23
08/16	192	4676	15	472	2	50	10	48	0	23
08/17	229	4905	5	477	0	50	8	56	1	24
08/18	443	5348	8	485	1	51	4	60	0	24
08/19	177	5525	3	488	1	52	6	66	0	24
08/20	100	5625	3	491	0	52	0	66	0	24
08/21	338	5963	6	497	0	52	28	94	0	24
08/22	248	6211	4	501	2	54	8	102	0	24
08/23	84	6295	0	501	0	54	4	106	1	25
08/24	46	6341	1	502	0	54	0	106	0	25
08/25	56	6397	2	504	1	55	9	115	0	25
08/26	43	6440	3	507	2	57	7	122	0	25
08/27	155	6595	33	540	5	62	157	279	0	25
08/28	151	6746	15	555	0	62	90	369	1	26
08/29	185	6931	15	570	1	63	72	441	0	26
08/30	125	7056	12	582	2	65	63	504	0	26
08/31	54	7110	13	595	1	66	35	539	0	26
09/01	54	7164	14	609	0	66	9	548	0	26
09/02	26	7190	2	611	0	66	13	561	0	26
09/03	29	7219	2	613	1	67	21	582	0	26
09/04	38	7257	4	617	0	67	15	597	0	26
09/05	7	7264	1	618	0	67	0	597	0	26
Total	7264		618		67		597		26	

^aCount includes 291 jacks.

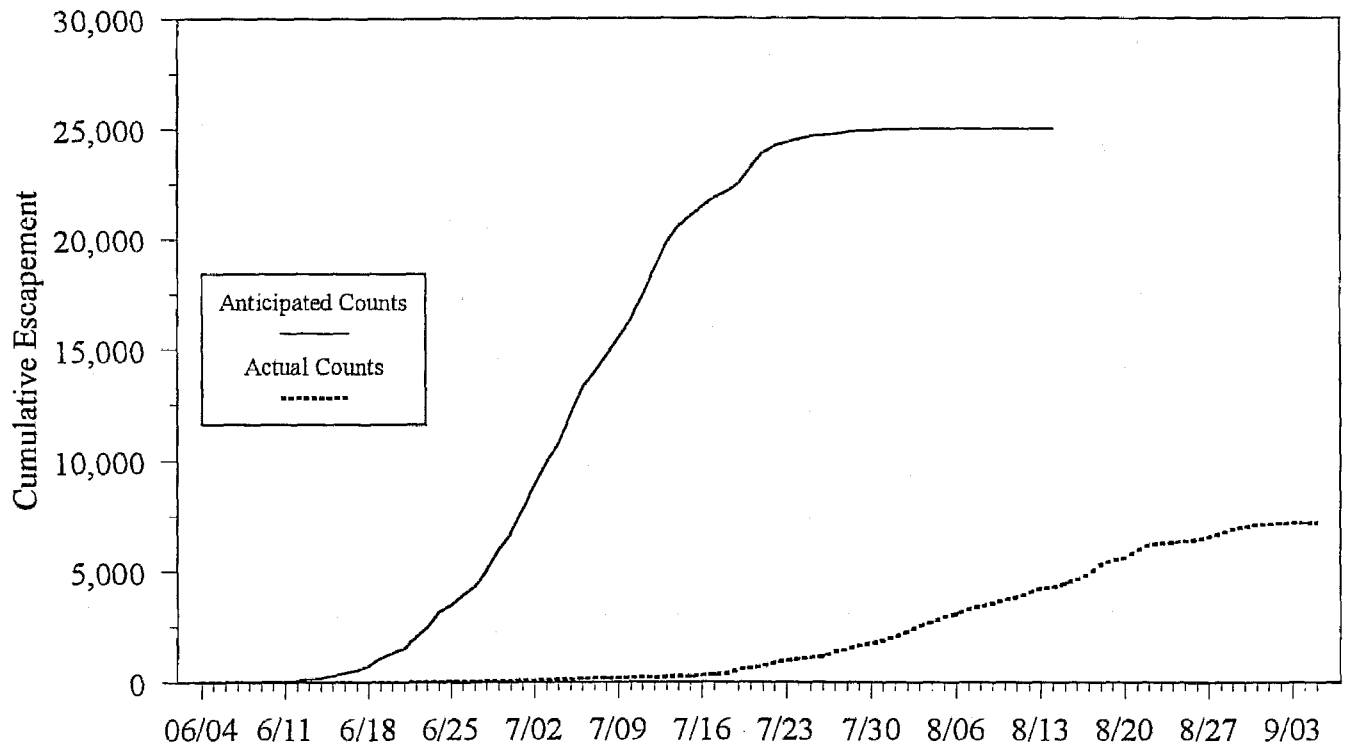
^bCount may be incomplete. The Coghill weir is designed to prohibit the passage of sockeye salmon and because of their smaller size some pink salmon are able to pass uncounted.

1994 COGHILL SOCKEYE SALMON ESCAPEMENT

Daily vs. Anticipated Escapement (25,000 Goal)



Cumulative Escapement



Appendix C.4. Anticipated, actual daily, and cumulative sockeye salmon escapement past the Coghill River weir, Prince William Sound, 1994.

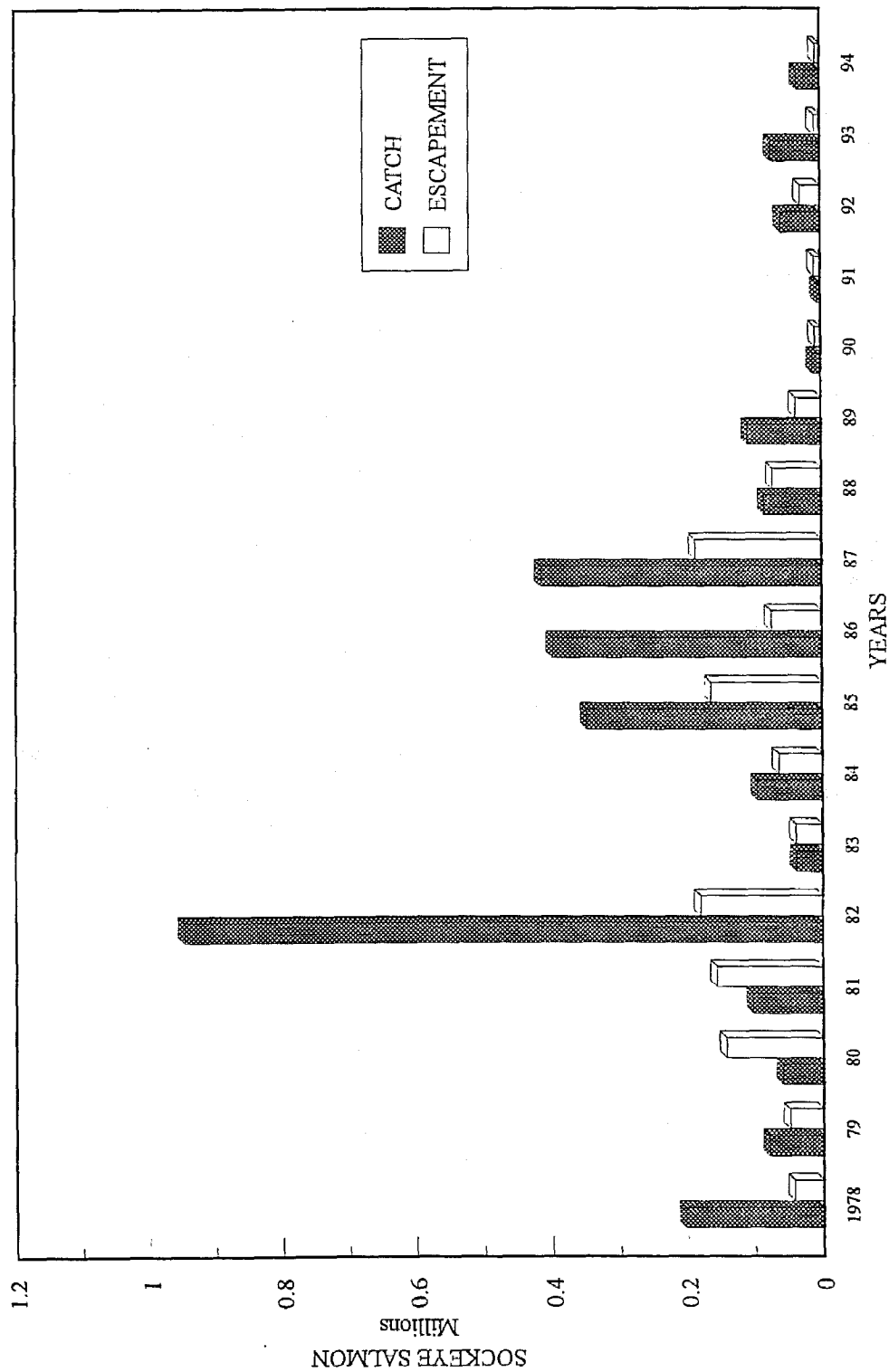
Appendix C.5. Salmon escapement by species in the Coghill District, Prince William Sound, 1969 - 1994.

Year	Sockeyea ^a	Pink ^b	Chum ^b
1969	81,000	39,020	8,410
1970	35,200	95,170	11,880
1971	15,000	62,160	6,600
1972	51,000	30,960	28,160
1973	55,000	493,780	72,610
1974	22,333	56,940	29,280
1975	34,855	452,430	3,640
1976	9,056	57,090	25,670
1977	31,562	130,510	43,940
1978	42,284	85,450	18,160
1979	48,281	70,980	6,330
1980	142,253	214,930	23,340
1981	156,112	106,450	2,050
1982	180,314	368,380	22,130
1983	38,783	310,330	61,410
1984	63,622	429,450	19,690
1985	163,311	296,970	22,140
1986	71,095	101,600	13,140
1987	187,263	147,060	24,510
1988	72,052	37,070	39,240
1989	37,751	45,510	22,680
1990	8,949	49,110	26,020
1991	9,752	98,580	6,070
1992	29,642	23,611	10,003
1993	9,232	42,381	8,430
1994	7,264	65,648	14,176
<hr/>			
20 Year			
Average	67,925	156,242	21,394
(1974-1993)			

^a Escapement count of sockeye salmon past the Coghill River weir.

^b Pink and chum escapements estimated for streams in district by aerial surveys. Historical data revised in 1990.

SOCKEYE SALMON CATCH and ESCAPEMENT COGHILL DISTRICT



Appendix C.6. Sockeye salmon catch and escapement in the Coghill District, Prince William Sound, 1978 - 1994.

Appendix C.7. Estimated age and sex composition of sockeye salmon from the commercial common property drift gillnet catch in the Coghill District and escapement through the Coghill River weir, 1994.

		Brood Year and Age Group										
		1991		1990		1989		1988		1987		
		0.2	1.1	0.3	1.2	1.3	2.2	1.4	2.3	3.3	Total	
<hr/>												
COMMERCIAL DRIFT GILLNET FISHERY												
Strata Combined:06/13 - 07/26												
Sampling dates: 06/21 - 07/26												
Sample size: 342												
Female	Percent of sample	0.0	0.0	0.0	1.1	2.8	1.1	0.0	0.1	0.0	5.1	
	Number in catch	0	0	0	96	246	96	0	12	0	450	
Male	Percent of sample	0.6	0.0	0.1	2.2	3.9	0.1	0.0	0.1	0.0	7.0	
	Number in catch	52	0	6	196	344	6	0	6	0	610	
Total	Percent of sample	0.6	0.6	0.2	32.7	61.0	2.1	0.0	2.8	0.0	100.0	
	Number in catch	52	52	19	2,862	5,333	180	0	249	0	8,746	
	Standard error	52	52	11	258	270	72	0	95	0		
<hr/>												
COGHILL LAKE ESCAPEMENT												
Strata Combined:06/17 - 09/05												
Sampling dates: 07/01 - 08/14												
Sample size: 1,275												
Female	Percent of sample	0.3	0.1	3.2	14.2	22.4	3.1	0.2	4.3	0.1	47.9	
	Number in catch	23	5	234	1,034	1,626	225	15	313	7	3,481	
Male	Percent of sample	0.1	0.4	4.0	6.3	34.2	1.2	0.3	5.5	0.0	52.1	
	Number in catch	10	30	290	457	2,483	89	25	399	0	3,783	
Total	Percent of sample	0.5	0.5	7.2	20.5	56.6	4.3	0.5	9.8	0.1	100.0	
	Number in catch	33	35	525	1,491	4,109	314	40	712	7	7,264	
	Standard error	18	16	68	96	117	46	15	60	6		

Appendix C.8. Commercial salmon harvest by statistical week in the Unakwik District drift gillnet and purse seine fisheries, P.W.S., 1994. The statistical weeks listed are for those that registered active fishing participation. For a listing of all fishing periods see Appendix C.10. a

Stat		Chinook				Sockeye		Coho		Pink		Chum	
Date	Week	Permits	Landings	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
GEAR: DRIFT GILLNET													
06/25	26	11	11	0	0	150	1,037	0	0	1	4	16	178
07/02	27	5	7	0	0	195	1,224	0	0	0	0	7	60
07/09	28c	3	3	0	0	203	1,426	0	0	0	0	4	35
08/20	34d	1	1	0	0	0	0	0	0	300	1,085	0	0
Total		17	22	0	0	548	3,687	0	0	301	1,089	27	273
Average Weight							6.73				3.62		10.11
GEAR: PURSE SEINE													
08/13	33e	10	11	0	0	10	58	0	0	107,389	333,944	1	8
08/20	34	25	31	0	0	125	731	44	460	175,919	552,557	35	242
08/27	35	10	18	0	0	91	571	58	575	99,583	300,455	37	243
09/03	36fg	1	1	0	0	0	0	0	0	6,010	16,227	0	0
Total		33	61	0	0	226	1,360	102	1,035	388,901	1,203,183	73	493
Average Weight							6.02		10.15		3.09		6.75
Combined Total		50	83	0	0	774	5,047	102	1,035	389,202	1,204,272	100	766
Average Weight							6.52		10.15		3.09		7.66

a The Unakwik District was opened on June 20 to two 24-hour periods per week. The weekly schedule was 8:00 a.m. Monday until 8:00 a.m. Tuesday and from 8:00 p.m. Thursday until 8:00 p.m. Friday.

b Statistical week ending date.

c The 60 mesh depth restriction was retained until further notice effective 8:00 a.m. Sunday, July 3. Unakwik district was closed until further notice on July 23.

d The 60 mesh depth restriction for drift gillnets was rescinded at 8:00 a.m. Monday, July 25.

e Fishing resumed August 9. See Appendix C.10 for opening dates.

f Effective 8:00 a.m. Monday, September 5, the Unakwik District was opened until further notice.

g Effective 8:00 p.m. Friday, September 30, the Unakwik District was closed for the season.

Appendix C.9. Commercial salmon catch by species in the
Unakwik District, Prince William Sound,
1975 - 1994.

CATCH BY SPECIES						
Year	Chinook	Sockeye	Coho	Pink	Chum	Total
GEAR: DRIFT GILLNET						
1975	4	11,922	0	84	70	12,080
1976	4	8,421	0	2,744	331	11,500
1977	3	7,912	2	257	141	8,315
1978	24	9,116	0	2,082	597	11,819
1979	11	9,250	9	2,359	289	11,918
1980	0	1,547	6	4,815	727	7,095
1981	0	2,445	0	4,152	1,330	7,927
1982	1	48,947	0	335	598	49,881
1983	3	13,215	0	1,515	1,426	16,159
1984	2	18,522	0	27,742	7,125	53,391
1985	26	27,532	22	9,191	3,942	40,713
1986	5	25,759	1	1,973	2,463	30,201
1987	2	5,894	1	4,871	1,356	12,124
1988	15	8,589	0	281	1,504	10,389
1989	31	21,412	27	41,820	404	63,694
1990	3	247	127	9,986	23	10,386
1991	13	4,482	11	12,299	118	16,923
1992	3	2,224	13	3,972	94	6,306
1993	5	14,691	4	3,338	978	19,016
1994	2	548	0	300	0	848
Ten Year Average (1984-93)	11	12,935	21	11,547	1,801	26,314
GEAR: PURSE SEINE						
1975						
1976	0	7	0	8,526	225	8,758
1977						0
1978	3	268	5	55,115	5,025	60,416
1979						
1980	0	6	0	9,113	355	9,474
1981	0	108	0	71,624	17,650	89,382
1982	0	2	4	89,137	517	89,660
1983	0	6	0	3,344	716	4,066
1984						
1985	0	138	0	28,210	4,123	32,471
1986	0	76	0	4,718	4,675	9,469
1987	0	146	0	187,752	6,549	194,447
1988	0	667	7	57,844	23,860	82,378
1989						
1990						
1991	0	819	3	121,068	79	121,969
1992	0	42	2	13,264	119	13,427
1993	0	79	0	3,233	67	3,379
1994	0	226	102	388,901	73	389,302
Ten Year Average (1984-93)	0	281	2	59,441	5,639	65,363
COMBINED GEARS						
1975	4	11,922	0	84	70	12,080
1976	4	8,428	0	11,270	556	20,258
1977	3	7,912	2	257	141	8,315
1978	27	9,384	5	57,197	5,622	72,235
1979	11	9,250	9	2,359	289	11,918
1980	0	1,553	6	13,928	1,082	16,569
1981	0	2,553	0	75,776	18,980	97,309
1982	1	48,949	4	89,472	1,115	139,541
1983	3	13,221	0	4,859	2,142	20,225
1984	2	18,522	0	27,742	7,125	53,391
1985	26	27,670	22	37,401	8,065	73,184
1986	5	25,835	1	6,691	7,138	39,670
1987	2	6,040	1	192,623	7,905	206,571
1988	15	9,256	7	58,125	25,364	92,767
1989	31	21,412	27	41,820	404	63,694
1990	3	247	127	9,986	23	10,386
1991	13	5,301	14	133,367	197	138,892
1992	3	2,266	15	17,236	213	19,733
1993	5	14,770	4	6,571	1,045	22,395
1994	0	774	102	389,201	73	390,150
Ten Year Average (1984-93)	11	13,132	22	53,156	5,748	72,068

• No catch recorded.

Appendix C.10. Summary of periods, dates, hours open, and emergency orders issued for the commercial salmon fisheries in the Coghill and Unakwik Districts, Prince William Sound, 1994.

Unakwik (229)		Coghill (223)		Emergency Orders Issued
Dates	Hours Open	Dates	Hours Open	
6/20 - 6/21	24	6/13 - 6/14	24	2-F-E-10-94 a
		6/16 - 6/17	24	2-F-E-13-94 a,b
		6/20	12	2-F-E-16-94 c
6/23 - 6/24	24			
6/27 - 6/28	24	6/27	12	2-F-E-19-94 c
6/30 - 7/01	24	7/01	12	2-F-E-23-94 d
7/04 - 7/05	24	7/04 - 7/05	24	2-F-E-24-94 e
7/07 - 7/08	24	7/07 - 7/08	24	2-F-E-28-94 f
7/11 - 7/12	24	7/09	12	2-F-E-31-94 f
7/14 - 7/15	24	7/14 - 7/15	24	2-F-E-38-94 f
7/18 - 7/19	24	7/18 - 7/19	24	2-F-E-42-94 f
7/21 - 7/22	24	7/21 - 7/22	24	2-F-E-45-94 g
		7/25 - 7/26	24	2-F-E-48-94 h
				2-F-E-65-94 i
8/09	12	8/09	12	2-F-E-66-94 j
				2-F-E-67-94 k
		8/11	12	2-F-E-68-94 l
8/13	12	8/13	12	2-F-E-69-94 m
8/15	12	8/15	12	2-F-E-72-94 m
8/17	12	8/17	12	2-F-E-73-94 m
8/19	12	8/19	12	2-F-E-76-94 m
8/21	12	8/21	12	2-F-E-78-94 m
8/23	12	8/23 - 8/24	36	2-F-E-79-94 m
8/25 - 8/27	60	8/25 - 8/27	60	2-F-E-81-94 n
8/28 - 8/31	84	8/28 - 8/31	84	2-F-E-84-94 o
9/01 - 9/04	84	9/01 - 9/04	84	2-F-E-85-94 o
9/05	612	9/05	540	2-F-E-87-94 p
		9/07		2-F-E-89-94 q
9/30		10/7		2-F-E-92-94 r

- a The Esther Subdistrict, excluding the waters of Lake Bay north of 60° 47' 36" N. Latitude was opened to fishing. Waters of the General Subdistrict between the Esther Subdistrict boundary in lower Esther Passage and markers located near Shoestring Cove at approximately 60° 50' 45" N. Latitude were also opened.
- b This emergency order opened the commercial fishing season in the Unakwik District and established a schedule of two 24-hour periods per week beginning June 20. The schedule was from 8:00 a.m. Monday until 8:00 a.m. Tuesday and from 8:00 p.m. Thursday until 8:00 p.m. Friday.
- c The Esther Subdistrict, excluding the Noerenberg Hatchery Terminal Harvest Area and Special Harvest Area was opened. Waters of the General Subdistrict between the Esther Subdistrict boundary in lower Esther Passage and markers located near Shoestring Cove at approximately 60° 50' 45" N. Latitude were also opened.
- d The Esther Subdistrict, and waters of the General District between the Esther Subdistrict boundary in lower Esther Passage and markers near Shoestring Cove were opened for 6 hours. The Noerenberg Hatchery Terminal Harvest Area and waters of Esther Bay north of 60° 48.1' N. latitude were opened for 12 hours. The Noerenberg Hatchery Special Harvest Area remained closed.

-Continued-

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- e Waters within one nautical mile of Esther Island, within the Esther Subdistrict, and in the Noerenberg Hatchery Special Harvest Area excluding waters within 50 yards of the barrier seine opened for 6 hours. The Noerenberg Hatchery Terminal Harvest Area and waters of Esther Bay north of 60 48.1' N. latitude opened for 24 hours. The 60 mesh depth restriction was retained until further notice.
 - f Waters of the Noerenberg Hatchery Special Harvest Area excluding waters within 50 yards of the barrier seine opened for 6 hours. The Noerenberg Hatchery Terminal Harvest Area and waters of Esther Bay north of 60 48.1' N. latitude opened for 24 hours.
 - g Waters of the Noerenberg Hatchery Special Harvest Area excluding waters within 50 yards of the barrier seine opened for 24 hours. The Noerenberg Hatchery Terminal Harvest Area and waters of Esther Bay north of 60 48.1' N. latitude also opened for 24 hours.
 - h Waters of the Noerenberg Hatchery Special Harvest Area excluding waters within 50 yards of the barrier seine opened for 24 hours. The Noerenberg Hatchery Terminal Harvest Area and waters of Esther Bay north of 60 48.1' N. latitude also opened for 24 hours. The Unakwik District closed effective 6:00 a.m. Sunday, July 24 until further notice. The 60 mesh depth restriction for gillnets in the Coghill and Unakwik districts was rescinded effective 8:00 a.m. Monday, July 25.
 - i The Noerenberg Hatchery Special Harvest Area was expanded for a 24-hour period to include all waters within 1-nautical mile of Esther Island from 6:00 p.m. Sunday, August 7 until 6:00 p.m. Monday, August 8.
 - j Waters of the Esther Subdistrict within 1-nautical mile Esther Island were open. The Noerenberg Hatchery Terminal Harvest Area of Quillian Bay and the outer portion of Lake Bay south of 60 47.6' N. latitude was open. The Noerenberg Hatchery Special Harvest Area of Lake Bay north of 60 47.6' N. latitude was closed.
 - k The Noerenberg Hatchery Special Harvest Area was expanded until further notice to include all waters within 1-nautical mile of Esther Island effective 10:00 a.m. Wednesday, August 10.
 - l Waters of the Esther Subdistrict within 1-nautical mile Esther Island were open however waters of Lake and Quillian Bays inside of a line from Hodgkin Point to Esther Light were closed.
 - m Waters of the Esther Subdistrict within 1-nautical mile Esther Island were open however waters of Lake and Quillian Bays inside of a line from Hodgkin Point to Esther Light were closed. The Unakwik District was open.
 - n Waters of the Esther Subdistrict within 1-nautical mile Esther Island were open however the Noerenberg Hatchery Special Harvest Area of Lake Bay north of 60 47.6' N. latitude was closed. The Unakwik District was open.
 - o Waters of the Esther Subdistrict within 1-nautical mile Esther Island were open. The Noerenberg Hatchery Terminal Harvest Area which consists of Quillian Bay and waters of Lake Bay south of 60 47.6' N. latitude were open. Lake Bay north of 60 47.6' N. latitude was closed. The Unakwik District was open.
 - p The described waters of the Esther Subdistrict and the Unakwik District were open until further notice effective 8:00 a.m. Monday, September 5. A 12-hour period for seine gear in the Noerenberg Hatchery Terminal Harvest Area on Tuesday, September 6 was announced to test for the predominance of pink or coho salmon. The Noerenberg Hatchery Special Harvest Area was closed.
 - q The Noerenberg Hatchery Terminal Harvest Area was open to drift gillnet gear on a weekly fishing schedule of 8:00 a.m. Monday until 8:00 p.m. Friday until further notice. The Noerenberg Hatchery Special Harvest Area was closed.
 - p The Unakwik District was closed for the season on Friday, September 30. The Coghill District closed for the season at 8:00 p.m. Friday, October 7.

APPENDIX D

ESHAMY DISTRICT

Appendix D.1. Commercial salmon harvest by statistical week in the Eshamy District commercial drift gillnet and set gillnet fisheries, P.W.S., 1994. The statistical weeks listed are those with active fishing participation.

Date	Stat Week	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
				Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
GEAR: DRIFT GILLNET													
07/09b	28	14	21	0	0	1,110	6,312	0	0	381	1,111	1,119	9,980
07/16	29	26	71	0	0	3,654	21,718	0	0	3,187	10,245	3,441	29,498
07/23	30	33	87	1	8	7,648	45,781	10	101	6,712	26,044	3,678	31,594
07/30c	31	37	55	1	13	5,230	28,663	24	186	6,044	19,214	420	3,097
08/06	32	48	173	0	0	11,402	65,944	60	646	30,386	102,793	527	4,094
08/13	33	42	258	0	0	13,674	78,786	72	595	107,893	362,685	189	1,506
08/20	34	26	107	0	0	7,736	40,173	75	604	57,216	185,831	62	491
08/27	35	21	66	0	0	6,583	34,255	183	1,446	39,899	126,787	37	256
09/03d	36	16	37	0	0	4,281	24,306	142	1,512	2,817	11,104	24	179
09/10	37	5	8	0	0	530	3,058	57	528				
Total		76	883	2	21	61,848	348,996	623	5,618	254,535	845,814	9,497	80,695
Average Weight:					10.50		5.64		9.02		3.32		8.50
GEAR: SET GILLNET													
07/09b	28	21	57	1	11	1,894	10,846	1	6	295	917	696	6,308
07/16	29	20	123	2	44	5,516	32,950	6	52	4,257	13,169	2,733	22,779
07/23	30	21	121	2	27	13,712	84,139	9	81	6,368	23,003	2,477	21,519
07/30c	31	19	45	0	0	4,527	25,458	90	362	3,687	12,874	227	1,684
08/06	32	24	113	0	0	11,033	61,988	22	196	18,837	66,113	356	2,789
08/13	33	25	229	2	23	16,472	92,911	49	500	93,640	315,948	258	2,067
08/20	34	24	137	1	13	13,189	70,180	53	496	82,564	284,531	94	739
08/27	35	23	116	0	0	15,546	83,080	217	1,851	93,965	320,150	46	336
09/03d	36	15	45	1	26	10,494	58,304	91	827	7,521	29,637	19	125
09/10	37	6	21	0	0	4,484	24,770	84	806			2	13
09/17e	38	1	3	0	0	797	5515	6	66				
Total		26	1,010	9	144	97,664	550,141	628	5,243	311,134	1,066,342	6,908	58,359
Average Weight					16.00		5.63		8.35		3.43		8.45
Combined Total		102	1,893	11	165	159,512	899,137	1,251	10,861	565,669	1,912,156	16,405	139,054
Average Weight					15.00		5.64		8.68		3.38		8.48

a Statistical week ending date.

b Only waters of the Main Bay Subdistrict were open in 1994. The 60 mesh gillnet depth restriction remained in effect until further notice.

c The 60 mesh depth restriction was rescinded effective 8:00 a.m. Monday, July 25.

d The waters of Main Bay Subdistrict were opened until further notice effective 8:00 a.m. Monday, September 5.

e The season officially closed at 8:00 p.m. Friday, October 7.

Appendix D.2. Commercial salmon catch by species in the
Eshamy District, Prince William Sound,
1977 - 1994.

CATCH BY SPECIES						
Year ^a	Chinook	Sockeye	Coho	Pink	Chum	Total
GEAR: DRIFT GILLNET						
1977	22	16,916	49	63,036	8,344	88,367
1980	0	684	25	3,235	130	4,074
1983	1	924	8	162,541	3,427	166,901
1984	7	23,490	282	247,326	15,451	286,556
1985	1	667	0	24,899	1,021	26,588
1986	0	4	1	938	65	1,008
1987	2	642	3	3,225	7,060	10,932
1988	94	50,868	794	348,873	206,060	606,689
1989 ^b						
1990	110	12,967	574	165,362	264,772	443,785
1991	107	296,234	468	44,516	202,183	543,508
1992	158	373,596	1,017	153,018	50,974	578,763
1993	8	80,807	673	45,974	27,045	154,507
1994	2	61,848	623	254,535	9,497	326,505
Ten Year Average (1984-93)	54	93,253	424	114,903	86,070	294,704
GEAR: SET GILLNET						
1977	9	9,889	2	24,743	4,218	38,861
1980	0	2,000	38	2,471	134	4,643
1983	1	1,328	10	167,942	4,463	173,744
1984	5	23,226	98	278,176	3,000	304,505
1985	1	3,439	74	33,284	1,295	38,093
1986	9	1,043	86	42,123	5,764	49,025
1987	31	5,387	336	86,677	45,099	137,530
1988	100	18,321	283	180,456	93,577	292,737
1989 ^b						
1990	56	10,204	532	369,589	94,494	474,875
1991	76	184,028	504	20,075	49,394	254,077
1992	101	144,568	1,242	390,097	4,695	540,703
1993	55	101,717	832	84,568	20,369	207,541
1994	9	97,664	628	311,134	6,908	416,343
Ten Year Average (1984-93)	48	54,659	443	165,005	35,299	255,454
COMBINED GEAR						
1977	31	26,805	51	87,779	12,562	127,228
1980	0	2,684	63	5,706	264	8,717
1983	2	2,252	18	330,483	7,890	340,645
1984	12	46,716	380	525,502	18,451	591,061
1985	2	4,106	74	58,183	2,316	64,681
1986	9	1,047	87	43,061	5,829	50,033
1987	33	6,029	339	89,902	52,159	148,462
1988	194	69,189	1,077	529,329	299,637	899,426
1989 ^b						
1990	166	23,171	1,106	534,951	359,266	918,660
1991	183	480,262	972	64,591	251,577	797,585
1992	259	518,164	2,259	543,115	55,669	1,119,466
1993	63	182,524	1,505	130,542	47,414	362,048
1994	11	159,512	1,251	565,669	16,405	742,848
Ten Year Average (1984-93)	102	147,912	867	279,908	121,369	550,158

^a Fishing was closed during the following years: 1975, 1976, 1978, 1979, 1981 and 1982.

^b Fishing was closed due to oil contamination on the beaches.

Appendix D.3. Daily salmon escapement through the Eshamy weir, Prince William Sound, 1994.

Date	Sockeye		Pink		Chum		Coho		Chinook	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
07/06	0	0	0	0	0	0	0	0	0	0
07/07	0	0	0	0	0	0	0	0	0	0
07/08	0	0	0	0	0	0	0	0	0	0
07/09	0	0	0	0	0	0	0	0	0	0
07/10	0	0	0	0	0	0	0	0	0	0
07/11	0	0	0	0	0	0	0	0	0	0
07/12	5	5	0	0	0	0	0	0	0	0
07/13	13	18	0	0	0	0	0	0	0	0
07/14	10	28	0	0	0	0	0	0	0	0
07/15	0	28	0	0	0	0	0	0	0	0
07/16	0	28	0	0	0	0	0	0	0	0
07/17	37	65	0	0	4	4	0	0	0	0
07/18	46	111	0	0	4	8	0	0	0	0
07/19	63	174	1	1	11	19	0	0	0	0
07/20	15	189	0	1	3	22	0	0	0	0
07/21	3	192	0	1	1	23	0	0	0	0
07/22	1	193	0	1	4	27	0	0	0	0
07/23	1	194	0	1	3	30	0	0	0	0
07/24	12	206	2	3	8	38	0	0	0	0
07/25	14	220	4	7	8	46	0	0	0	0
07/26	52	272	2	9	11	57	0	0	0	0
07/27	0	272	0	9	0	57	0	0	0	0
07/28	1	273	0	9	0	57	0	0	0	0
07/29	3	276	1	10	2	59	0	0	0	0
07/30	0	276	0	10	7	66	0	0	0	0
07/31	7	283	3	13	2	68	0	0	0	0
08/01	2	285	8	21	1	69	0	0	0	0
08/02	7	292	4	25	1	70	0	0	0	0
08/03	5	297	3	28	0	70	0	0	0	0
08/04	22	319	6	34	0	70	0	0	0	0
08/05	7	326	10	44	3	73	0	0	0	0
08/06	9	335	12	56	4	77	0	0	0	0
08/07	36	371	8	64	0	77	0	0	0	0
08/08	23	394	10	74	0	77	0	0	0	0
08/09	49	443	22	96	1	78	0	0	0	0
08/10	21	464	17	113	0	78	0	0	0	0
08/11	40	504	21	134	0	78	0	0	0	0
08/12	44	548	19	153	0	78	0	0	0	0
08/13	100	648	48	201	1	79	0	0	0	0
08/14	49	697	51	252	0	79	0	0	0	0
08/15	91	788	35	287	0	79	0	0	0	0
08/16	152	940	72	359	0	79	0	0	0	0
08/17	92	1,032	29	388	0	79	1	1	0	0
08/18	104	1,136	96	484	0	79	0	1	0	0
08/19	57	1,193	87	571	1	80	0	1	0	0
08/20	78	1,271	130	701	1	81	1	2	0	0
08/21	85	1,356	182	883	0	81	0	2	0	0
08/22	73	1,429	154	1,037	0	81	0	2	0	0
08/23	38	1,467	273	1,310	0	81	0	2	0	0
08/24	38	1,505	188	1,498	0	81	0	2	0	0
08/25	30	1,535	421	1,919	0	81	0	2	0	0
08/26	154	1,689	741	2,660	0	81	1	3	0	0
08/27	300	1,989	935	3,595	0	81	17	20	0	0
08/28	193	2,182	737	4,332	0	81	2	22	0	0
08/29	50	2,232	660	4,992	0	81	0	22	0	0
08/30	86	2,318	640	5,632	0	81	7	29	0	0
08/31	72	2,390	474	6,106	0	81	2	31	1	1
09/01	87	2,477	743	6,849	0	81	3	34	0	1
09/02	69	2,546	694	7,543	0	81	1	35	0	1
09/03	65	2,611	656	8,199	0	81	0	35	0	1
09/04	72	2,683	704	8,903	0	81	2	37	0	1

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Appendix D.3. (page 2 of 2)

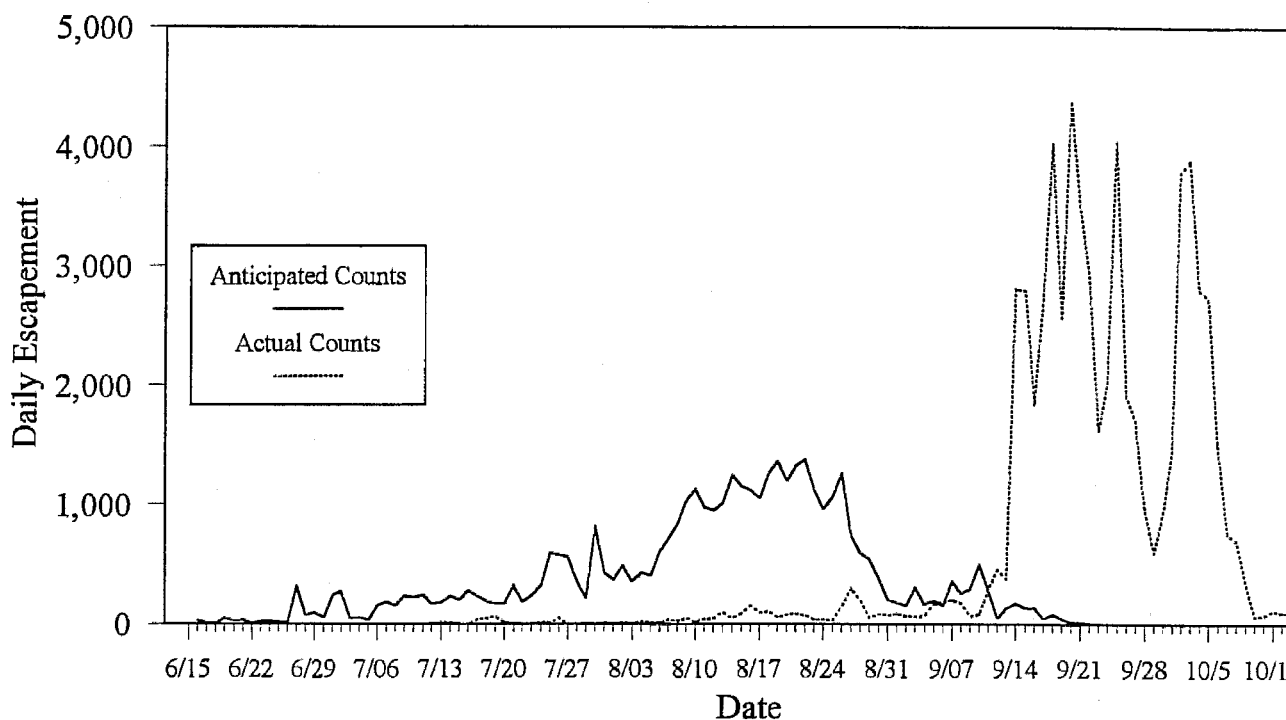
Date	Sockeye ^a		Pink ^b		Chum		Coho		Chinook	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
09/05	167	2,850	679	9,582	0	81	2	39	0	1
09/06	186	3,036	669	10,251	0	81	37	76	0	1
09/07	203	3,239	709	10,960	0	81	22	98	0	1
09/08	174	3,413	375	11,335	0	81	8	106	0	1
09/09	66	3,479	307	11,642	0	81	20	126	0	1
09/10	84	3,563	121	11,763	0	81	2	128	0	1
09/11	289	3,852	109	11,872	0	81	263	391	0	1
09/12	454	4,306	59	11,931	0	81	75	466	0	1
09/13	377	4,683	41	11,972	0	81	5	471	0	1
09/14	2,819	7,502	55	12,027	1	82	472	943	0	1
09/15	2,796	10,298	11	12,038	0	82	115	1,058	0	1
09/16	1,847	12,145	8	12,046	0	82	63	1,121	0	1
09/17	2,734	14,879	1	12,047	0	82	10	1,131	0	1
09/18	4,037	18,916	4	12,051	0	82	11	1,142	0	1
09/19	2,555	21,471	1	12,052	0	82	9	1,151	0	1
09/20	4,386	25,857	2	12,054	0	82	5	1,156	0	1
09/21	3,514	29,371	2	12,056	0	82	7	1,163	0	1
09/22	2,919	32,290	0	12,056	0	82	3	1,166	0	1
09/23	1,623	33,913	1	12,057	0	82	1	1,167	0	1
09/24	2,038	35,951	0	12,057	0	82	1	1,168	0	1
09/25	4,064	40,015	0	12,057	0	82	2	1,170	0	1
09/26	1,909	41,924	0	12,057	1	83	1	1,171	0	1
09/27	1,703	43,627	0	12,057	1	84	1	1,172	0	1
09/28	958	44,585	1	12,058	0	84	1	1,173	0	1
09/29	596	45,181	1	12,059	1	85	1	1,174	0	1
09/30	927	46,108	1	12,060	0	85	0	1,174	0	1
10/01	1,453	47,561	0	12,060	1	86	0	1,174	0	1
10/02	3,797	51,358	1	12,061	0	86	0	1,174	0	1
10/03	3,891	55,249	0	12,061	0	86	1	1,175	0	1
10/04	2,806	58,055	0	12,061	1	87	1	1,176	0	1
10/05	2,740	60,795	0	12,061	0	87	0	1,176	0	1
10/06	1,515	62,310	0	12,061	0	87	2	1,178	0	1
10/07	750	63,060	0	12,061	0	87	1	1,179	0	1
10/08	699	63,759	0	12,061	0	87	2	1,181	0	1
10/09	339	64,098	0	12,061	0	87	1	1,182	0	1
10/10	60	64,158	0	12,061	0	87	1	1,183	0	1
10/11	73	64,231	0	12,061	0	87	0	1,183	0	1
10/12	112	64,343	0	12,061	0	87	1	1,184	0	1
10/13	95	64,438	0	12,061	0	87	0	1,184	0	1
10/14	92	64,530	0	12,061	0	87	0	1,184	0	1
10/15	30	64,560	0	12,061	0	87	0	1,184	0	1
10/16	58	64,618	0	12,061	0	87	0	1,184	0	1
10/17	42	64,660	0	12,061	0	87	0	1,184	0	1
Totals	64,660		12,061		87		1184		1	

^a Count includes 2918 sockeye jacks.

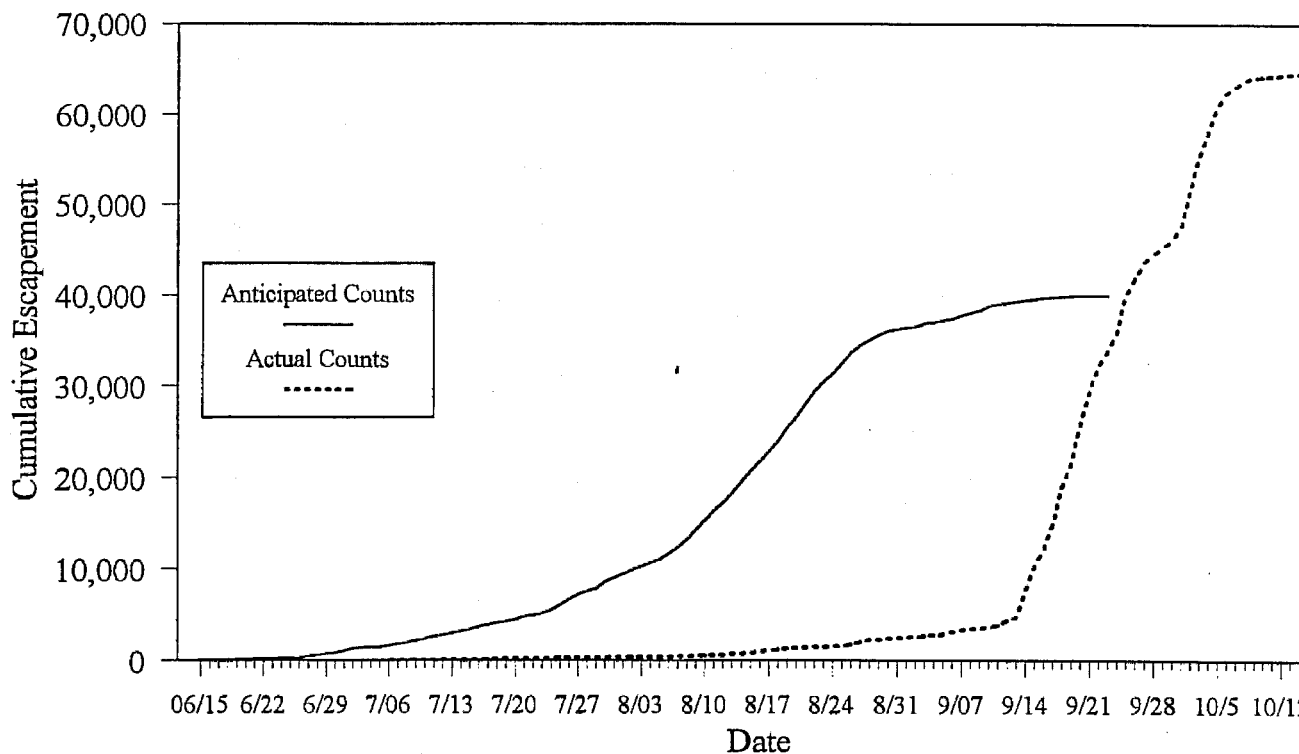
^b Count may be incomplete. The Eshamy weir is designed to prohibit the passage of sockeye salmon and some pink salmon are able to pass uncounted because of their smaller size.

1994 ESHAMY LAKE SOCKEYE SALMON ESCAPEMENT

Daily vs. Anticipated Escapement (40,000 Goal)



Cumulative Escapement



Appendix D.4. Anticipated, actual, and cumulative sockeye salmon escapement past the Eshamy weir, Prince William Sound, 1994.

Appendix D.5. Salmon escapement by species at the Eshamy weir, Prince William Sound, 1967 - 1994.

Year	Escapement by Species ^a					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1967	0	10,821	192	10,433	1	21,447
1968	1	68,048	450	919	1	69,419
1969	0	61,196	96	3,095	2	64,389
1970	0	11,460	25	387	0	11,872
1971	0	954 ^b	97	3,179	0	4,230
1972		28,683				28,683
1973	0	10,202	205	1,698	0	12,105
1974		633				633
1975		1,724				1,724
1976		19,367				19,367
1977	0	11,746	230	32,080	0	44,056
1978	0	12,580	20	552	0	13,152
1979	0	12,169	5	3,654	1	15,829
1980	5	44,263	128	963	2	45,361
1981	1	23,048 ^c	249	5,956	13	29,267
1982	0	6,782 ^d	79	1,056	79	7,996
1983	0	10,348	40	7,047	4	17,439
1984	2	36,121 ^e	881	3,970	0	40,974
1985	0	26,178	96	6,271	0	32,545
1986	2	6,949	55	1,004	31	8,041
1987 ^f						
1988	2	31,747	48	1,205	1	33,003
1989	1	57,106 ^g	0	6,283	210	63,600
1990	0	14,191 ^h	43	2,209	5	16,448
1991	2	46,229 ⁱ	907	31,241	17	78,396
1992	1	36,237 ^j	52	3,004	5	39,299
1993	1	42,893 ^k	92	3,435	9	46,430
1994	1	64,660 ^l	1,184	12,061	87	77,993
20 Year Average (1974-1993)	1	23,174	183	6,871	24	29,135

^a Incidental passage of salmon other than sockeye were not recorded for each year.

^b Probably inaccurate because of holes in weir. Actual escapement is estimated to be at least 3,000.

^c Assuming the run was 90 percent complete, an additional 2,600 sockeye are estimated to have escaped following weir removal.

^d An estimated 270 sockeye below the weir when pulled is included in the total count.

^e An estimated 25 sockeye below the weir at removal are included in the total count.

^f The Eshamy weir was not in operation during 1987.

^g Total does not include 126 jacks counted through.

^h Total does not include 286 sockeye jacks counted through.

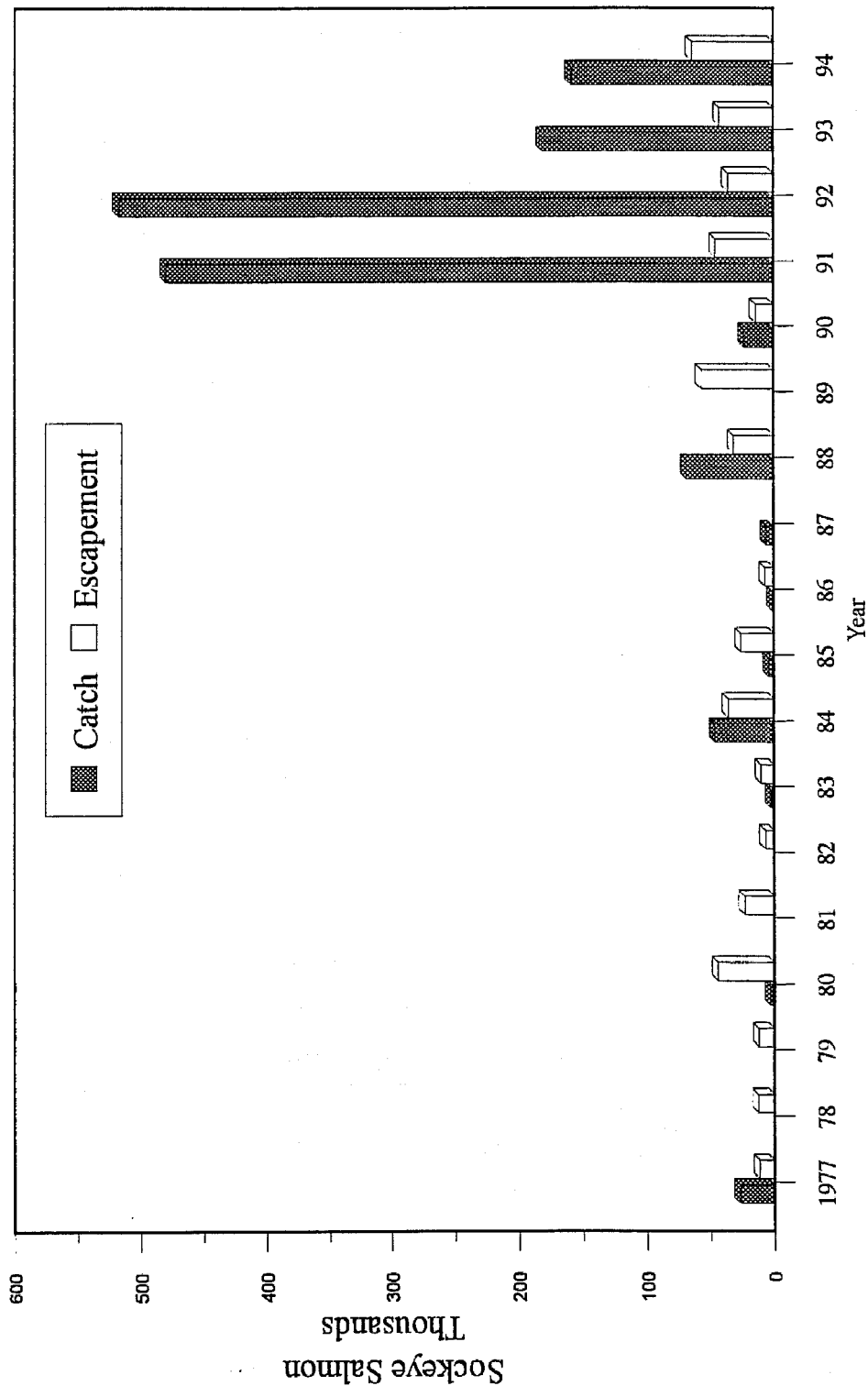
ⁱ Count includes 681 jacks.

^j Count includes 350 jacks.

^k Count includes 94 jacks.

^l Count includes 2918 jacks.

SOCKEYE SALMON CATCH AND ESCAPEMENT **ESHAMY DISTRICT**



Appendix D.7. Temporally stratified age and sex composition of sockeye salmon harvested in the Eshamy District commercial common property gillnet fisheries, 1994.

		Brood Year and Age Group									
		1991		1990			1989		1988		
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	Total
<hr/>											
Stratum dates: 07/07 - 07/13											
Sampling dates: 07/08 - 07/08											
Sample size: 347											
Female	Percent of sample	0.0	0.0	0.0	21.3	0.0	24.5	0.0	0.3	0.0	46.1
	Number in catch	0	0	0	1,853	0	2,129	0	25	0	4,007
Male	Percent of sample	0.0	0.3	0.0	29.7	0.0	23.9	0.0	0.0	0.0	53.9
	Number in catch	0	25	0	2,580	0	2,079	0	0	0	4,684
Total	Percent of sample	0.0	0.3	0.0	51.0	0.0	48.4	0.0	0.3	0.0	100.0
	Number in catch	0	25	0	4,433	0	4,208	0	25	0	8,691
	Standard error	0	25	0	234	0	233	0	25	0	
<hr/>											
Stratum dates: 07/14 - 07/20											
Sampling dates: 07/15 - 07/15											
Sample size: 381											
Female	Percent of sample	0.0	0.0	0.0	26.8	0.0	17.8	0.3	0.3	0.5	45.7
	Number in catch	0	0	0	3,242	0	2,161	32	32	64	5,530
Male	Percent of sample	0.0	0.0	0.0	28.1	0.0	16.0	0.5	0.0	0.3	44.9
	Number in catch	0	0	0	3,401	0	1,939	64	0	32	5,435
Total	Percent of sample	0.0	0.3	0.0	59.3	0.0	38.3	1.0	0.3	0.8	100.0
	Number in catch	0	32	0	7,183	0	4,640	127	32	95	12,109
	Standard error	0	32	0	305	0	302	63	32	55	
<hr/>											
Stratum dates: 07/21 - 08/07											
Sampling dates: 08/05 - 08/05											
Sample size: 399											
Female	Percent of sample	0.0	0.3	0.3	56.1	0.0	1.3	1.5	0.0	0.0	59.4
	Number in catch	0	113	113	25,222	0	563	676	0	0	26,885
Male	Percent of sample	0.0	0.5	0.0	37.8	0.3	2.0	0.0	0.0	0.0	40.6
	Number in catch	0	225	0	17,002	113	901	0	0	0	18,241
Total	Percent of sample	0.0	0.8	0.3	94.0	0.3	3.3	1.5	0.0	0.0	100.0
	Number in catch	0	338	113	42,224	113	1,464	676	0	0	44,926
	Standard error	0	195	113	535	113	400	274	0	0	
<hr/>											
Stratum dates: 08/08 - 09/10											
Sampling dates: 08/12 - 08/12											
Sample size: 381											
Female	Percent of sample	0.0	0.3	0.3	44.9	0.0	0.5	0.5	0.0	0.0	46.5
	Number in catch	0	246	246	42,093	0	492	492	0	0	43,570
Male	Percent of sample	0.3	0.3	0.0	50.9	0.0	1.0	1.0	0.0	0.0	53.5
	Number in catch	246	246	0	47,755	0	985	985	0	0	50,216
Total	Percent of sample	0.3	0.5	0.3	95.8	0.0	1.6	1.6	0.0	0.0	100.0
	Number in catch	246	492	246	89,847	0	1,477	1,477	0	0	93,786
	Standard error	246	348	246	965	0	599	599	0	0	

- Continued -

		Brood Year and Age Group										
		1991		1990			1989		1988			
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	Total	
<hr/>												
Strata Combined: 07/07 - 09/10												
Sampling dates: 07/08 - 08/12												
Sample size: 1,508												
Female	Percent of sample	0.0	0.2	0.2	45.4	0.0	3.4	0.8	0.0	0.0	50.0	
	Number in catch	0	359	359	72,410	0	5,345	1,200	57	64	79,793	
Male	Percent of sample	0.2	0.3	0.0	44.3	0.1	3.7	0.7	0.0	0.0	49.3	
	Number in catch	246	496	0	70,737	113	5,903	1,048	0	32	78,575	
Total	Percent of sample	0.2	0.6	0.2	90.1	0.1	7.4	1.4	0.0	0.1	100.0	
	Number in catch	246	887	359	143,687	113	11,789	2,280	57	95	159,512	
	Standard error	246	400	271	1,169	113	815	662	40	55		

Appendix D.8. Temporally stratified age and sex composition of the sockeye salmon escapement through the weir at the head of Eshamy Lagoon, 1994.

		Brood Year and Age Group								
		1991		1990		1989		1988		
		0.2	1.1	1.2	2.1	1.3	2.2	2.3	3.2	Total
Stratum dates: 07/12 - 08/27										
Sampling dates: 08/18 - 08/26										
Sample size: 396										
Female	Percent of sample	0.3	0.0	31.8	0.0	0.8	10.9	0.5	0.0	44.2
	Number in escapement	5	0	633	0	15	216	10	0	879
Male	Percent of sample	0.0	1.8	40.9	0.3	2.3	10.1	0.5	0.0	55.8
	Number in escapement	0	35	814	5	45	201	10	0	1,110
Total	Percent of sample	0.3	1.8	72.7	0.3	3.0	21.0	1.0	0.0	100.0
	Number in escapement	5	35	1,447	5	60	417	20	0	1,989
	Standard error	5	13	45	5	17	41	10	0	
Stratum dates: 08/28 - 09/06										
Sampling dates: 08/30 - 09/05										
Sample size: 446										
Female	Percent of sample	0.0	0.0	24.7	0.0	0.7	13.0	0.4	0.0	38.8
	Number in escapement	0	0	212	0	6	112	4	0	334
Male	Percent of sample	0.0	3.1	35.0	1.1	4.3	16.1	1.6	0.0	61.2
	Number in escapement	0	27	301	10	37	139	14	0	527
Total	Percent of sample	0.0	3.1	59.6	1.1	4.9	29.1	2.0	0.0	100.0
	Number in escapement	0	27	514	10	42	251	17	0	861
	Standard error	0	7	20	4	9	19	6	0	
Stratum dates: 09/07 - 09/14										
Sampling dates: 09/08 - 09/11										
Sample size: 381										
Female	Percent of sample	0.0	0.0	18.1	0.0	0.8	14.7	0.3	0.0	33.9
	Number in escapement	0	0	842	0	37	684	12	0	1,575
Male	Percent of sample	0.0	1.8	31.5	0.8	3.7	26.2	1.8	0.3	66.1
	Number in escapement	0	85	1,465	37	171	1,221	85	12	3,077
Total	Percent of sample	0.0	1.8	49.6	0.8	4.5	40.9	2.1	0.3	100.0
	Number in escapement	0	85	2,308	37	208	1,905	98	12	4,652
	Standard error	0	32	119	21	49	117	34	12	
Stratum dates: 09/15 - 10/17										
Sampling dates: 09/19 - 09/19										
Sample size: 410										
Female	Percent of sample	0.0	0.0	32.7	0.0	0.5	13.7	0.5	0.0	47.3
	Number in escapement	0	0	18,681	0	279	7,807	279	0	27,045
Male	Percent of sample	0.0	2.9	36.1	0.7	1.2	10.7	1.0	0.0	52.7
	Number in escapement	0	1,673	20,633	418	697	6,134	558	0	30,113
Total	Percent of sample	0.0	2.9	68.8	0.7	1.7	24.4	1.5	0.0	100.0
	Number in escapement	0	1,673	39,314	418	976	13,941	836	0	57,158
	Standard error	0	476	1,310	241	366	1,214	339	0	

- Continued -

		Brood Year and Age Group								
		1991		1990		1989		1988		
		0.2	1.1	1.2	2.1	1.3	2.2	2.3	3.2	Total
<hr/>										
Strata Combined: 07/12 - 10/17										
Sampling dates: 08/18 - 09/19										
Sample size: 1,633										
Female	Percent of sample	0.0	0.0	31.5	0.0	0.5	13.6	0.5	0.0	46.1
	Number in escapement	5	0	20,369	0	336	8,819	305	0	29,834
Male	Percent of sample	0.0	2.8	35.9	0.7	1.5	11.9	1.0	0.0	53.9
	Number in escapement	0	1,821	23,213	470	950	7,695	667	12	34,826
Total	Percent of sample	0.0	2.8	67.4	0.7	2.0	25.5	1.5	0.0	100.0
	Number in escapement	5	1,821	43,581	470	1,286	16,514	972	12	64,660
	Standard error	5	478	1,316	242	370	1,220	341	12	

Appendix D.9. Summary of periods, dates, hours open, and emergency orders issued for the commercial salmon fisheries in the Eshamy District, Prince William Sound, 1994.

Main Bay Subdistrict (225-21)			Crafton Island Subdistrict (225-10, 20, 30)			Emergency Orders Issued
Periods	Dates	Hours Open	Periods	Dates	Hours Open	
	7/3					2-F-E-24-94 ^a
1	7/7 - 7/8	24				2-F-E-28-94 ^b
2	7/11 - 7/12	36				2-F-E-31-94
3	7/14 - 7/16	36				2-F-E-38-94
4	7/18 - 7/20	48				2-F-E-42-94
5	7/21 - 7/23	48				2-F-E-45-94
	7/24					2-F-E-48-94 ^c
6	7/28 - 7/29	24				2-F-E-51-94
7	8/1 - 8/2	24				2-F-E-55-94
8	8/4 - 8/6	48				2-F-E-60-94
9	8/8 - 8/10	48				2-F-E-64-94
10	8/11 - 8/13	48				2-F-E-68-94
11	8/15 - 8/16	36				2-F-E-71-94
12	8/18 - 8/20	36				2-F-E-75-94
13	8/22 - 8/23	36				2-F-E-78-94
14	8/25 - 8/27	36				2-F-E-81-94
15	8/29 - 8/30	36				2-F-E-84-94
16	9/1 - 9/3	36				2-F-E-85-94
17	9/5	780				2-F-E-87-94 ^d
18	10/7					2-F-E-92-94 ^e

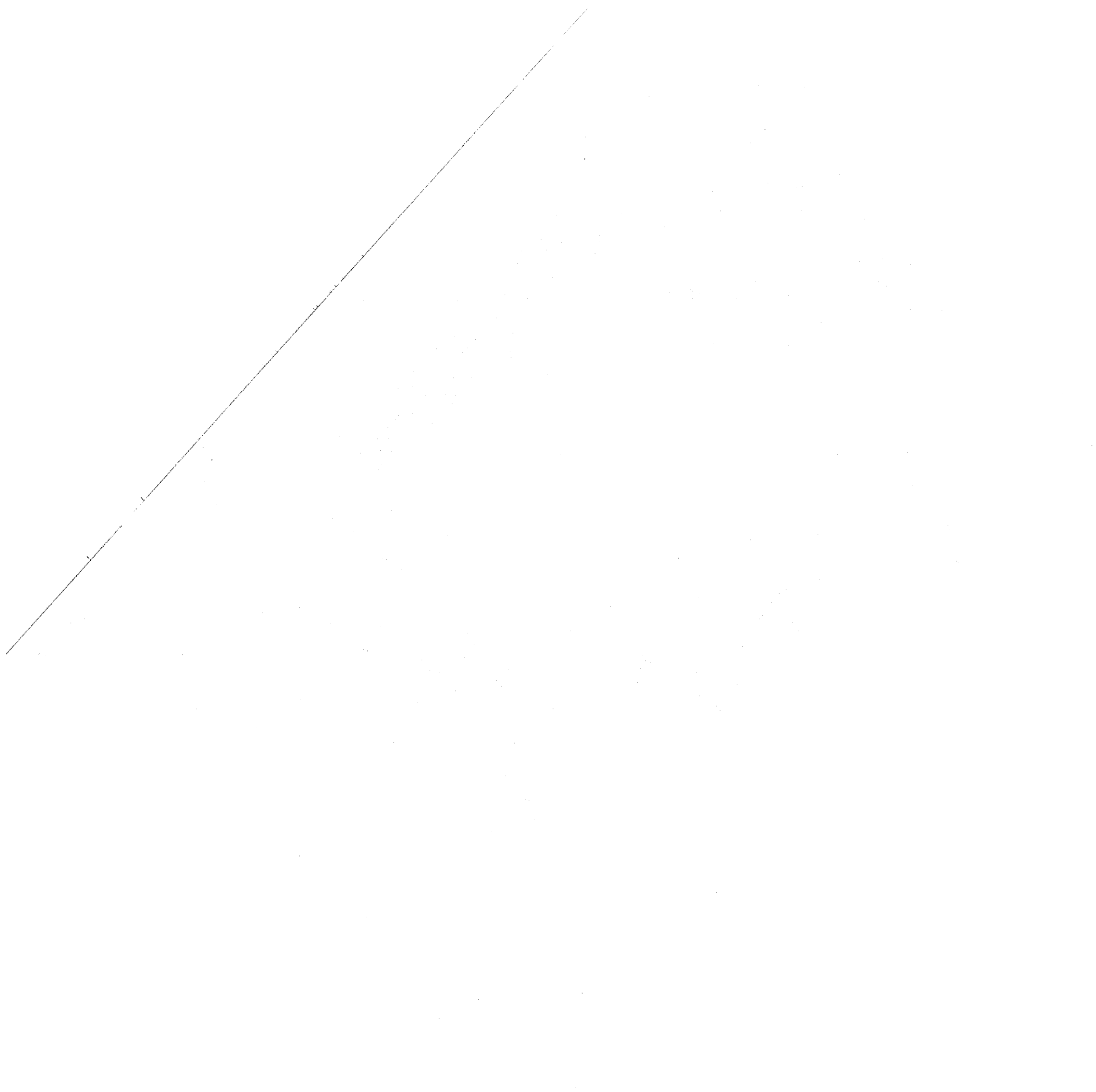
^a The 60 mesh gillnet depth restriction was continued until further notice in Eshamy, Coghill and Unakwik Districts effective 8:00 a.m. Sunday, July 3.

^b The Main Bay Subdistrict of the Eshamy District was opened to fishing.

^c The 60 mesh depth restriction was rescinded in the Eshamy, Coghill and Unakwik Districts effective 8:00 a.m. Monday, July 25.

^d The Main Bay Subdistrict was opened until further notice.

^e The Eshamy District was closed for the season at 8:00 p.m. Friday, October 7.



APPENDIX E

PRINCE WILLIAM SOUND

PURSE SEINE DISTRICTS

Appendix E.1. Prince William Sound commercial purse seine salmon harvest by day, 1994. Includes the common property catch from all districts open to purse seines: Eastern, Northern, Unakwik, Coghill, and Southwestern.

Catch Date	Chinook				Sockeye		Coho		Pink		Chum	
	Permits	Landings	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
06/30 a	48	48	7	136	33	198	2	21	238,024	699,044	2,033	17,719
07/03 b	47	57	5	89	86	550	4	28	521,092	1,548,793	1,430	11,133
07/04 b	49	86	2	52	123	762	3	24	723,133	2,159,199	978	8,003
07/08 c	92	143	8	142	127	711	35	273	1,172,175	3,406,476	2,410	19,717
07/10 d	95	150	4	35	109	688	45	348	1,405,483	4,113,239	2,929	23,778
07/13 e	102	128	0	0	58	365	28	231	1,257,751	3,673,749	700	5,888
07/17 f,g	112	239	1	16	206	1,240	114	779	2,633,123	7,807,370	6,072	50,935
07/20 f	115	193	2	28	214	1,312	32	251	1,576,984	4,710,169	5,949	50,344
07/22 f,g	107	120	4	42	198	1,262	79	601	532,536	1,584,342	22,494	196,702
07/24 h	63	68	2	37	33	220	97	664	299,315	898,766	1,864	15,794
07/25 h,i	84	94	10	169	1,570	10,117	257	2,106	446,038	1,325,737	3,171	26,404
07/27 j	62	76	3	40	200	1,175	3,380	25,829	564,411	1,658,837	4,506	35,987
07/30 k	135	161	4	112	7,935	47,321	1,677	12,368	1,223,441	3,749,075	7,426	60,617
08/01 i,l	151	195	2	63	5,321	31,598	1,054	7,949	1,498,206	4,595,390	4,298	34,964
08/03 m,n	149	186	3	37	14,045	83,427	1,147	9,776	1,355,677	4,264,515	4,259	34,540
08/05 g,m,n	156	170	2	40	12,936	77,651	1,326	11,005	1,156,279	3,620,009	2,870	22,643
08/09 m,o	157	248	4	49	3,358	19,523	343	2,847	2,276,751	7,036,642	1,521	11,878
08/11 m,p,q	155	177	5	50	4,018	24,490	630	5,800	1,304,163	4,103,300	1,991	16,146
08/13 m,p,r	157	192	3	35	4,315	26,530	557	4,706	1,378,610	4,387,063	1,213	9,600
08/15 p,s	150	171	5	89	4,000	24,348	782	6,699	1,259,730	3,966,955	1,059	8,523
08/17 p,t	146	154	6	81	4,815	28,630	894	7,973	698,166	2,253,904	855	6,632
08/19 p,t	109	115	24	238	5,862	36,079	1,524	13,456	592,574	1,873,403	1,100	8,709
08/21 p,u	84	89	4	48	2,587	15,636	1,671	13,427	470,385	1,482,635	434	3,381
08/23 p,u	54	55	5	67	1,588	10,216	1,902	15,101	289,389	908,537	156	1,134
08/24 p	36	38	0	0	1,585	10,127	1,896	16,827	216,834	676,999	114	840
08/25 u,v	30	31	6	58	1,293	7,609	889	8,084	173,440	546,324	157	1,093
08/26 u,v	15	15	0	0	855	5,599	729	6,701	66,694	221,645	69	564
08/27 u,v	11	14	0	0	1,021	5,837	3,124	30,686	77,314	241,462	5	37
08/28 w,x	8	9	0	0	1,119	6,437	3,881	32,587	68,045	225,367	4	29
08/29 w	2	2	0	0	140	752	1,394	11,584	18,464	58,344	1	8
08/30 w	3	4	0	0	188	945	2,171	17,360	36,532	109,598	0	0
08/31 w	5	7	0	0	352	1,976	4,809	38,804	64,475	210,260	19	135
09/01 w	3	3	0	0	80	403	753	6,025	16,654	49,962	0	0
09/03 w	6	6	0	0	208	1,146	2,586	21,189	45,078	140,359	10	70
09/04 w	2	2	0	0	121	689	2,491	20,749	14,944	51,297	2	14
09/10 y	3	3	0	0	0	0	4,357	31,682	0	0	14	125
09/12 y,z	1	1	0	0	0	0	242	1,870	0	0	0	0
Total	171	3,450	121	1,753	80,699	485,569	46,905	386,410	25,671,910	78,358,766	82,113	684,086
Average Weight				14.49		6.02		8.24		3.05		8.33

- a Open waters included waters of the Valdez Narrows Subdistrict east of a line from Potato Point to Entrance Point and west of 146 30.5' W. longitude.
- b The Valdez Narrows Subdistrict was open. The Solomon Gulch Special Harvest Area was closed. Effective 10:30 a.m. July 3, waters between the light pole on the western side of Allison Point and within 200 yards of the easternmost berth of the Alyeska Marine Marine Terminal were open for the remainder of the commercial fishing period.
- c Open waters included the Valdez Narrows Subdistrict east of a line from Potato Point and west of a line from an orange buoy on the south shore located at 146 25.25' W. longitude to a marker on the north shore located at 146 23.9' W. longitude.
- d Open waters included waters of the Valdez Narrows Subdistrict west of a line from a marker on the south shore at approximately 146 27' W. longitude to a marker on the north shore at 146 23.9' W. longitude.
- e The opening included waters of Port Valdez east of 146 30.5' W. longitude. Waters within 500 yards of the south shore of Port Valdez from the head of the Port to a marker west of the Alyeska Security Zone at approximately 146 27' W. longitude were closed.

- Continued -

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- f Open waters were north of Black Point at 60 54.6' N. latitude including Valdez Narrows and Port Valdez. The opening excluded Galena Bay east of a line from Rocky Point at 60 57.6' N. lat., 146 45.0' W. long., to 60 58.1' N. lat., 146 43.1' W. long. Waters of the south shore of Port Valdez were closed. (See EO for further description)
- g Open waters included waters east of Granite Point at 147 23.0' W. longitude.
- h The Valdez Narrows Subdistrict was open. The south shore of Port Valdez was closed. (See EO for further detail)
- i The Point Elrington Subdistrict was open.
- j Open waters included waters north of Black Point at 60 54.6' N. latitude including Valdez Narrows and Port Valdez. The south shore of Port Valdez, as described in EO#2-F-E-50-94, was closed.
- k Waters north of Black Point at 60 54.6' N. latitude and south of a line from Entrance Point to Potato Point were open. Port Valdez and Valdez Narrows were closed. Waters open in the Northern District included waters east of Point Pellew at 147 39.5' W. longitude. Unakwik Inlet, Wells, Granite and Cedar Bays were closed north of the latitude of Payday Point at 60 53.5' N. latitude. Waters south of a line at the latitude of Dual Head at 60 15' N. lat., and waters east of Knight Island south of Marsha Bay at 60 19' N. lat., were open. Waters of the Port San Juan Subdistrict were closed.
- l The opening included waters west of Granite Point at 147 23.0' W. longitude and east of Point Pellew at 147 39.5' W. longitude. Waters of Unakwik Inlet were open, however Jonah and Siwash Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrance to those bays. Wells, Cedar and Granite Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.
- m Waters open included Valdez Arm north of Black Point at 60 54.6' N. latitude and Port Valdez west of 146 30.5' W. longitude. The waters of Port Valdez east of 146 30.5' W. longitude were closed.
- n Open waters were those waters east of Point Pellew at 147 39.5' W. longitude. Unakwik Inlet was closed north of Payday Point at 60 53.5' N. latitude. Wells, Cedar and Granite Bays were closed inside of the yellow Salmon Harvest Task Force markers. Waters south of a line at the latitude of Dual Head at 60 15' N. latitude and waters east of Knight Island south of Marsha Bay at 60 19' N. lat. were open. Waters of the Port San Juan Subdistrict and the Point Elrington Subdistrict were closed as well as the waters of Latouche Passage south of a line from Bishop Rock to Point Grace and north of a line from the southernmost point of Latouche Island to the eastern boundary of the Point Elrington Subdistrict at 148 10' W. longitude. On August 5, waters of Shelter Bay were also closed from the northwest tip of Evans Island at 60 09.6' N. latitude, 147 58.5' W. longitude to the western boundary of the Port San Juan Subdistrict at Evans Point.
- o Waters east of the westernmost point of Bald Head Chris Island including Unakwik Inlet were open. The Cannery Creek Hatchery Special Harvest Area was closed. Granite, Wells, Cedar, Jonah and Siwash Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays. Open waters included the Esther Subdistrict within one nautical mile of Esther Island. The Terminal Harvest Area of Quillian Bay and the outer portion of Lake Bay south of 60 47.6' N. latitude were also open. The Noerenberg Hatchery Special Harvest Area of Lake Bay north of 60 47.6' N. latitude was closed.
- p Waters of the Esther Subdistrict within one nautical mile of Esther Island were open, however waters of Lake and Quillian Bays inside of a line from Hodgkin Point to Esther Light were closed.
- q Waters east of the westernmost point of Bald Head Chris Island were open, however waters of Unakwik Inlet north of Payday Point at 60 53.5' N. latitude were closed. Granite, Wells and Cedar Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.
- r Open waters included waters east of the westernmost point of Bald Head Chris Island. The waters of Unakwik Inlet south of 60 59' N. latitude were open. The waters of Unakwik Inlet north of 60 59' N. latitude and south of the reef were closed. Granite, Wells, Cedar and Siwash Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.
- s Waters east of the westernmost point of Bald Head Chris Island and west of Granite Point at 147 23.0' W. longitude were open. Waters of Unakwik Inlet south of 60 54.5' N. latitude were open. The waters of Unakwik Inlet north of 60 54.5' N. latitude and south of the reef were closed. Granite, Wells and Cedar Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.

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Appendix E.1. (page 3 of 3)

- t Waters open included waters east of the westernmost point of Bald Head Chris Island and west of Granite Point at 147 22.0' W. longitude. Waters of Unakwik Inlet south of 60 54.5' N. latitude were open. The waters of Unakwik Inlet north of 60 54.5' N. latitude and south of the reef were closed. Granite, Wells and Cedar Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.
- u Waters east of Point Pellew at 147 39.5' W. longitude and west of Granite Point at 147 22.0' W. longitude were open. Waters of Unakwik Inlet south of 60 54.5' N. latitude were open. The waters of Unakwik Inlet north of 60 54.5' N. latitude and south of the reef were closed. Granite, Wells and Cedar Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.
- v Waters within one nautical mile of Esther Island were open, however the Noerenberg Hatchery Special Harvest Area was closed.
- w Waters within one nautical mile of Esther Island were open. The Noerenberg Hatchery Terminal Harvest Area was also open. On September 6, only the Noerenberg Hatchery Terminal Harvest Area was open to purse seine gear. This area did not reopen to purse seine gear in 1994.
- x Waters of Sawmill Bay west of 148 3.2' W. longitude were open for 84 hours from August 28 to 8:00 p.m. August 31. The same waters were also open for another 84 hours from 8:00 a.m. September 1 until 8:00 p.m. September 4 and then reopened at 8:00 a.m. September 5 until further notice.
- y Open waters included waters within 1,000 yards of the south shore of Port Valdez from Allison Point to the closed waters at the head of Port Valdez. This area was open to a weekly schedule of 8:00 a.m. Monday until 8:00 p.m. Friday beginning September 12.
- z The season officially closed at 8:00 p.m. September 30.

Appendix E.2. Commercial salmon harvest by species, all gear and districts combined,
Prince William Sound, 1971 - 1994.^a

CATCH BY SPECIES						
Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1971	3,551	88,368	30,551	7,310,964	574,265	8,007,699
1972 ^b	547	197,526	1,634	54,783	45,370	299,860
1973	2,405	124,802	1,399	2,056,878	729,839	2,915,323
1974 ^b	1,590	129,366	801	448,773	88,544	669,074
1975	2,519	189,613	6,142	4,452,805	100,479	4,751,558
1976	1,044	112,809	6,171	3,018,991	370,478	3,509,493
1977	648	310,358	843	4,513,082	572,610	5,397,541
1978	1,042	222,083	1,495	2,913,721	485,147	3,623,488
1979	2,015	150,040	6,843	15,607,620	326,414	16,092,932
1980	189	189,816	2,952	14,157,057	482,016	14,832,030
1981	404	251,222	4,383	20,524,470	1,878,716	22,659,195
1982	255	1,055,099	24,362	20,396,222	1,335,368	22,811,306
1983	1,048	92,111	10,496	14,038,796	1,041,309	15,183,760
1984	489	311,955	12,420	22,086,806	1,201,842	23,613,512
1985	1,104	493,278	19,753	25,056,663	1,280,093	26,850,891
1986	1,330	488,715	12,277	11,407,271	1,683,049	13,592,642
1987	874	540,109	47,751	29,198,507	1,904,494	31,691,735
1988	1,037	183,572	75,709	11,817,323	1,832,114	13,909,755
1989	1,113	140,090	203,574	21,860,582	995,962	23,201,321
1990	447	58,497	234,525	44,163,479	959,838	45,416,786
1991	445	507,815	145,311	37,134,311	331,906	38,119,788
1992	1,475	780,932	202,311	8,635,448	328,568	9,948,734
1993	2,148	418,948	48,310	5,761,436	1,173,341	7,404,183
1994	1,376	334,183	121,518	36,874,188	1,039,095	38,370,360
Ten Year						
Average	1,046	392,391	100,194	21,712,183	1,169,121	23,374,935
(1984-93)						

^a Includes purse seine, drift gillnet and set gillnet catches from all P.W.S. fishing districts; Eastern, Northern, Unakwik, Coghill, Northwestern, Eshamy, Southwestern, Montague and Southeastern. Also includes hatchery sales harvests, confiscated fish, donated and discarded fish catch, the surimi study fish, and the educational special use permit catches.

^b General purse seine season closed.

Appendix E.3. Commercial pink salmon harvest for all gear types, by district, Prince William Sound, 1969-1994. Includes purse seine, drift gillnet and set gillnet catches from all Prince William Sound districts; Unakwik catches are included in the Northern District. Does not include hatchery cost recovery, confiscated and test fish harvests.

Year	DISTRICT								Total
	Eastern	Northern	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern	
1969	963,583	262,403	43,134	268,240		2,565,737		696,182	4,799,279
1970	358,326	308,797	100,338	371,528		1,518,700		90,438	2,748,127
1971 ^a	1,974,605	666,308	323,841	163,401		3,901,939		276,605	7,306,699
1972 ^b			9,408		54,781				64,189
1973	327,453	183,467	95,793	127,197		407,388	146,778	657,429	1,945,505
1974 ^b			163,328		285,441				448,769
1975	712,328	171,657	303,597	420,891		1,673,887	118,467	875,456	4,276,283
1976	1,380,943	384,267	217,696	207,190		589,458		82,366	2,861,920
1977	1,673,044	147,964	230,215	208,727		930,469	77,104	824,374	4,091,897
1978	1,516,076	933,013	13,059					216,696	2,678,844
1979	4,500,032	115,886	38,560	59,423		5,111,073	1,347,413	4,160,925	15,333,312
1980	3,140,134	1,271,177	134,876	306,109		7,507,776	950	1,271,389	13,632,411
1981	4,797,583	1,194,621	34,155	46,874		10,371,220	278,879	3,221,268	19,944,600
1982	2,959,601	2,331,903	1,000,524	520,972	3,997	10,801,771	6,444	747,116	18,372,328
1983	2,430,063	1,021,345	273,131	714,522		5,957,068	158,241	1,482,013	12,036,383
1984	4,525,029	2,194,904	996,483	1,412,822	544,082	10,197,349	11,587	1,245,042	21,127,298
1985	6,715,143	1,002,872	523,773	527,132	58,183	10,843,752	1,448,809	2,733,562	23,853,226
1986	2,488,540	944,871	214,593	285,184	43,061	6,374,535		147,268	10,498,052
1987	6,964,549	2,419,611	1,578,568	750,877	89,902	13,341,940	111,011	955,988	26,212,446
1988	481,324	286,743	2,932,072	7,738	529,329	5,411,424		1,776	9,630,406
1989	3,151,096	6,464,090	3,925,487	181,565	^c	^c	^c	73,177	13,795,415
1990	7,970,364	5,482,585	2,692,788	891,444	534,951	17,811,479	10,658	12,325	35,406,594
1991	2,617,222	4,150,612	2,211,575		64,591	17,849,425			26,893,425
1992	489,228	1,142,061	363,887		543,115	3,039,775			5,578,066
1993		413,308	493,747		130,542	2,475,798			3,513,395
1994	11,554,320	7,171,038	3,597,094		565,669	3,408,093			26,296,214
10 year Average (1984-93)	3,933,611	2,450,166	1,593,297	579,537	253,776	8,734,548	316,413	738,448	17,652,832

^a The Eshamy District was closed to fishing.

^b The general purse seine district was closed to fishing.

^c These districts were closed due to the Exxon Valdez oil spill.

Appendix E.4. Aerial escapement indices for pink and chum salmon by district, Prince William Sound, 1994.

PINK SALMON (EVEN CYCLE)						
District	Escapement Goal	Even Cycle Escapement Range		1966-92 Mean Index	Observed Escapement Index ^a	Deviation From Goal
Eastern	474,000	427,000	- 521,000	452,508	615,240	29.8%
Northern/Unakwik	213,000	192,000	- 235,000	197,373	178,151	-16.4%
Coghill	143,000	129,000	- 158,000	128,087	65,648	-54.1%
Northwestern	135,000	122,000	- 149,000	127,344	141,290	4.7%
Eshamy	8,200	7,000	- 9,000	8,476	11,799	43.9%
Southwestern	144,000	130,000	- 159,000	139,314	144,594	0.4%
Montague	70,000	63,000	- 77,000	71,415	60,084	-14.2%
Southeastern	239,000	215,000	- 263,000	233,594	196,378	-17.8%
Total	1,426,200			1,358,111	1,413,184	-0.9%
CHUM SALMON						
District	Escapement Goal	Escapement Range		1965-93 Mean Index	Observed Escapement Index ^a	Deviation From Goal
Eastern	98,100	87,200	- 109,000	91,395	40,476	-58.7%
Northern/Unakwik	33,075	29,400	- 36,750	41,211	23,942	-27.6%
Coghill	33,325	29,600	- 37,050	20,796	14,176	-57.5%
Northwestern	21,350	19,000	- 23,700	13,815	12,992	-39.1%
Eshamy	0	0	- 0	37	100	
Southwestern	3,825	3,400	- 4,250	1,856	2,225	-41.8%
Montague	12,825	11,400	- 14,250	2,580	0	-100.0%
Southeastern	22,500	20,000	- 25,000	15,745	4,057	-82.0%
Total	225,000			187,435	97,968	-56.5%

^aBased on weekly aerial survey counts of 209 index spawning streams in Prince William Sound. This does not represent the total spawning escapement but rather a comparable annual index.

Appendix E.5. Pink salmon harvests and escapement indices, including hatchery sales harvests and brood stock, Prince William Sound, 1965 - 1994.
Historical data revised in 1989.

PINK SALMON ESCAPEMENTS ^a												
Year	Eastern	Northern/ Unakwik	Coghill	Northwest	Eshamy	Southwest	Montague	Southeastern	Hatchery		Common Property Catches	Total Run
									Sales	Brood		
1965	257,853	59,820	91,584	159,011	9,340	65,380	77,042	255,926	975,956		2,460,471	3,436,427
66	544,980	288,710	135,440	79,960	11,720	115,570	42,220	204,570	1,423,170		2,699,418	4,122,588
67	255,240	144,200	65,240	82,980	5,020	42,950	10,020	236,610	842,260		2,626,340	3,468,600
68	364,930	151,120	108,020	117,430	10,770	172,770	52,350	179,120	1,156,510		2,452,168	3,608,678
69	160,600	94,770	39,020	23,830	0	57,850	1,550	26,910	404,570		4,828,579	5,233,149
1970	387,090	125,360	95,170	82,660	7,610	66,790	73,880	140,660	979,220		2,809,996	3,789,216
71	352,800	126,210	62,160	14,320	1,710	79,140	296,730	179,480	1,112,550		7,310,964	8,423,514
72	344,470	83,900	30,960	39,020	1,100	29,530	33,140	79,060	641,180		54,783	695,963
73	309,040	69,660	493,780	2,910	0	52,320	119,520	177,780	1,225,010		2,056,878	3,281,888
74	256,880	206,750	56,940	163,930	6,240	160,980	11,750	94,650	958,120		448,773	1,406,893
1975	412,560	38,260	452,430	4,990	0	77,270	85,380	194,670	1,265,560		4,452,805	5,718,365
76	472,080	139,600	57,090	68,150	5,840	52,120	13,790	117,590	926,260		3,018,995	3,945,255
77	390,930	69,980	136,510	80,890	16,450	178,670	152,960	277,780	1,298,170	7,745	4,514,431	5,844,258
78	279,120	163,010	85,450	132,300	5,430	258,980	56,690	164,030	1,145,010	114,188	40,432	4,079,703
79	642,220	200,730	70,980	124,020	0	231,300	219,400	728,630	2,217,280	223,748	54,207	17,888,458
1980	535,960	189,140	214,930	159,260	13,100	133,470	118,400	307,680	1,671,940	346,728	145,061	15,597,753
81	599,340	243,170	106,450	51,210	3,990	93,630	255,420	359,870	1,713,080	707,037	268,501	21,975,160
82	573,070	332,560	368,380	174,290	15,080	195,950	132,380	482,860	2,274,570	1,354,732	239,545	18,858,647
83	481,950	168,410	310,330	196,630	12,610	161,290	230,200	601,880	2,163,100	686,963	258,062	16,347,586
84	1,209,740	593,310	429,450	452,370	16,860	345,760	191,810	792,560	4,031,860	415,393	341,259	26,471,588
1985	750,530	214,210	206,970	199,190	1,410	181,270	332,240	645,510	2,621,330	1,209,960	640,340	23,550,698
86	356,380	141,420	101,600	81,490	3,840	74,980	44,680	155,830	960,220	905,464	466,471	10,498,052
87	514,570	132,960	147,060	75,390	3,450	112,920	149,260	330,630	1,466,240	2,691,190	1,158,908	26,125,769
88	362,370	143,850	37,070	73,780	490	126,440	67,990	152,540	964,530	1,632,701	824,302	9,650,406
89	359,730	106,530	45,510	68,540	19,470	176,230	181,760	315,000	1,272,770	5,737,911	856,927	23,796,279
1990	443,660	131,580	49,110	115,870	17,870	150,100	113,572	304,090	1,325,852	6,691,160	749,910	46,239,241
91	474,380	165,930	98,580	101,320	18,800	197,095	247,890	533,170	1,837,165	5,201,860	1,324,255	40,295,731
92	204,383	72,915	23,611	42,308	2,709	66,953	47,156	95,070	555,105	2,626,248	802,117	5,578,099
93	315,209	95,503	41,837	46,011	9,348	98,573	144,784	315,093	1,066,358	2,212,403	893,462	3,548,694
94	615,240	178,151	65,648	141,290	11,799	144,594	60,084	196,378	1,413,184	10,521,439	1,467,755	26,364,862
EVEN CYCLE AVG. (1966-92)												
AVG.	452,508	197,373	128,087	127,344	8,476	139,314	71,415	233,594	1,358,111	1,760,827	451,187	12,040,831
ODD CYCLE AVG. (1965-93)												
AVG.	418,431	128,689	163,485	82,072	6,773	120,395	166,944	345,249	1,432,038	2,075,424	607,864	14,886,863

^aCaghill and Northwestern escapement figures correspond to current district boundaries.

^bIncludes the common property harvest of both wild and hatchery stocks. Does not include hatchery sales harvests.

^cRepresents the sum of the commercial catch, hatchery sales, brood (including roe recoveries), plus the escapement index. Does not account for wild stock escapement into non-index streams.

Appendix E.6. Weekly aerial estimates of pink salmon escapement by statistical area, Prince William Sound, 1994.

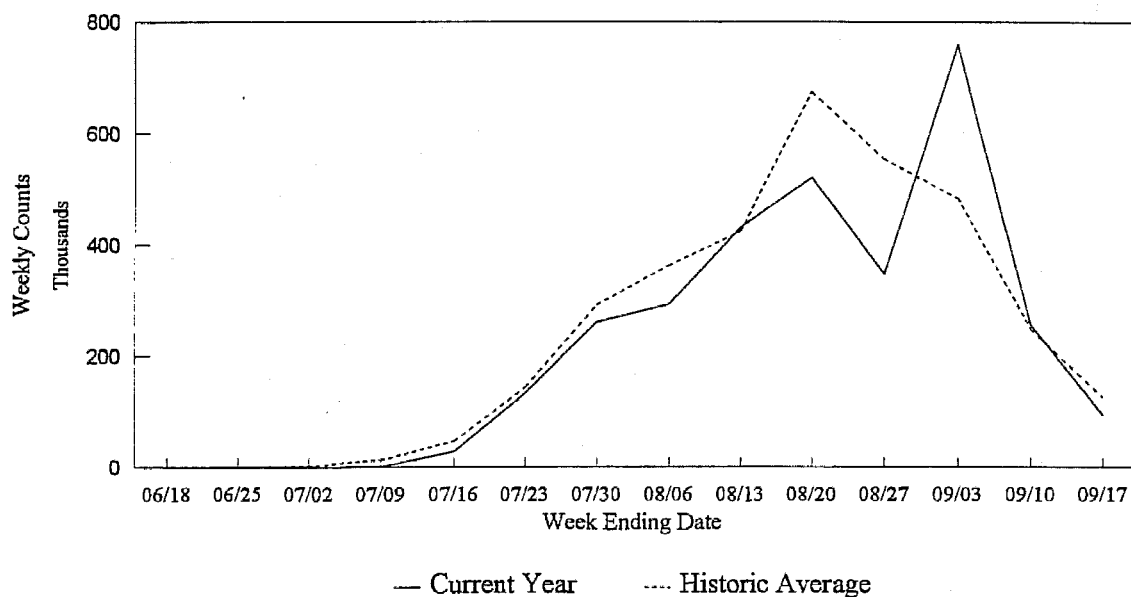
Survey Location	Week Ending Dates *																Adjusted Total b
	06/18	06/25	07/02	07/09	07/16	07/23	07/30	08/06	08/13	08/20	08/27	09/03	09/10	09/17			
22110 Orea Inlet	NS	0	NS	0	55	1,310	4,100	5,300	5,025	7,600	6,800	3,640	570	10	14,015		
22120 Simpson & Sheep Bay	0	0	0	0	1,760	15,000	17,000	23,365	44,650	54,605	NS	64,900	465	13,150	128,535		
22130 Port Gravina	0	100	0	0	2,550	13,375	18,290	18,555	29,655	16,850	NS	99,400	43,320	15,420	123,348		
22140 Port Fidalgo	0	0	0	0	1,050	7,800	22,770	22,530	26,835	13,420	NS	48,600	18,160	7,110	79,019		
22150 Valdez Arm	0	0	0	400	16,250	35,050	79,370	56,750	56,380	56,900	NS	122,150	93,000	38,425	260,363		
22161 Port Valdez	NS	0	0	0	132	780	7,245	11,700	11,830	5,750	NS	3,875	718	NS	19,960		
Eastern District Total																	
22210 Columbia & Long Bay	0	0	0	450	21,767	73,315	148,775	141,200	177,375	155,125	6,800	342,565	156,223	74,116	615,240		
22220 Wells Bay & Unakwik In	0	0	0	0	210	2,000	15,820	9,900	14,157	15,058	NS	22,185	1,030	NS	37,959		
22230 Eagle Bay	NS	NS	NS	NS	0	50	3,340	24,105	28,220	20,500	44,500	35,855	61,400	12,381	3,600		
Northern District Total																	
222910 Upper Unakwik Inlet	0	0	0	0	300	9,440	45,350	57,170	41,447	76,608	45,955	96,685	14,841	4,000	176,151		
Unakwik District (229) Total																	
22310 West Side Port Wells	NS	NS	NS	NS	0	0	4,150	5,000	15,260	15,000	30,550	13,250	30,530	3,970	1,220		
22320 Esther Passage	NS	NS	NS	NS	0	0	50	0	0	750	650	1,460	1,633	300	NS		
22330 College Fjord	NS	NS	NS	NS	0	0	250	800	1,500	11,000	12,200	2,420	11,725	420	NS		
Coghill District Total																	
22410 Passage Canal & Cochra	NS	NS	NS	NS	0	0	4,450	5,800	16,760	26,750	43,400	16,330	43,705	4,690	1,220		
22430 Culross Passage	NS	NS	NS	NS	0	1,875	6,910	1,600	1,250	21,000	19,350	16,840	44,470	16,200	2,230		
22440 Port Nellie Juan	NS	NS	NS	NS	0	160	5,360	1,000	2,200	12,160	450	19,350	5,200	5,750	3,000		
Northwestern District Total																	
22530 Tratton/Eshany	NS	NS	NS	NS	442	240	6,950	6,100	5,050	25,100	25,700	16,100	31,625	8,530	5,550		
Eshany District Total																	
22620 Chenega Is. & Dangerous	NS	NS	NS	NS	462	2,265	19,220	8,700	8,500	53,260	45,500	52,090	81,295	30,480	11,780		
22630 East Knight Is.	NS	NS	NS	NS	0	201	200	150	2,010	2,010	1,200	11,500	1,410	1,500	11,799		
22640 Bainbridge & Latouche P	NS	NS	NS	NS	NS	2,960	10,805	25,675	21,850	33,600	47,460	51,640	43,500	19,360	NS		
22650 Port Bainbridge	NS	NS	NS	NS	NS	1,200	1,750	5,500	3,000	7,000	3,000	800	2,500	4,000	NS		
Southwestern District Total																	
22710 Monique Strait	NS	NS	NS	NS	NS	0	900	605	3,060	3,060	8,950	4,220	11,310	4,055	NS		
22720 Green Island	NS	NS	NS	NS	NS	NS	150	800	900	1,400	1,600	1,200	1,500	2,900	NS		
Montague District Total																	
22810 Orea Is. & East Hawkins	NS	NS	NS	NS	NS	4,160	13,605	32,580	28,800	45,600	61,020	57,860	58,810	30,315	NS		
22820 Hawkins Cutoff	NS	NS	NS	NS	NS	NS	955	380	2,462	5,015	19,970	18,155	14,990	4,852	NS		
22830 North Hawkins & Canoe	NS	NS	NS	NS	NS	0	15	635	1,300	8,920	11,530	11,363	18,570	742	NS		
22840 Double Bay	NS	NS	NS	NS	NS	0	970	1,015	3,762	13,935	31,500	29,538	33,560	5,594	0		
22850 Johnstone Point	NS	NS	NS	NS	NS	NS	NS	1,700	600	1,500	900	1,100	900	200	NS		
22860 Port Etches	NS	NS	NS	NS	NS	NS	95	4,035	5,380	6,700	10,500	20,630	14,590	8,650	NS		
Southeast District Total																	
22900 TOTAL OF 9 DISTRICTS	0	100	0	912	28,997	133,495	282,120	293,842	432,327	521,063	348,343	760,755	256,485	93,215	1,413,184		

* There are a total of 209 streams included in the systematic aerial survey program. The survey program commences in the Eastern District where the earliest escapements in the Sound occur. Weather and conditions permitting, each stream is flown weekly. Failure to fly a survey due to run timing or bad survey conditions is denoted by NS (no survey). A notation of NC (no count) occurs when a stream is flown but no count is possible because of survey conditions (i.e. water clarity). During the peak of the pink salmon run many streams are flown twice weekly to provide fisheries managers with more timely escapement data. In cases where more than one survey per week was flown the weekly observation shown in this table is the average of the two counts if observing conditions during both surveys were good or, the maximum of the two counts if conditions during the minimum count were poor.

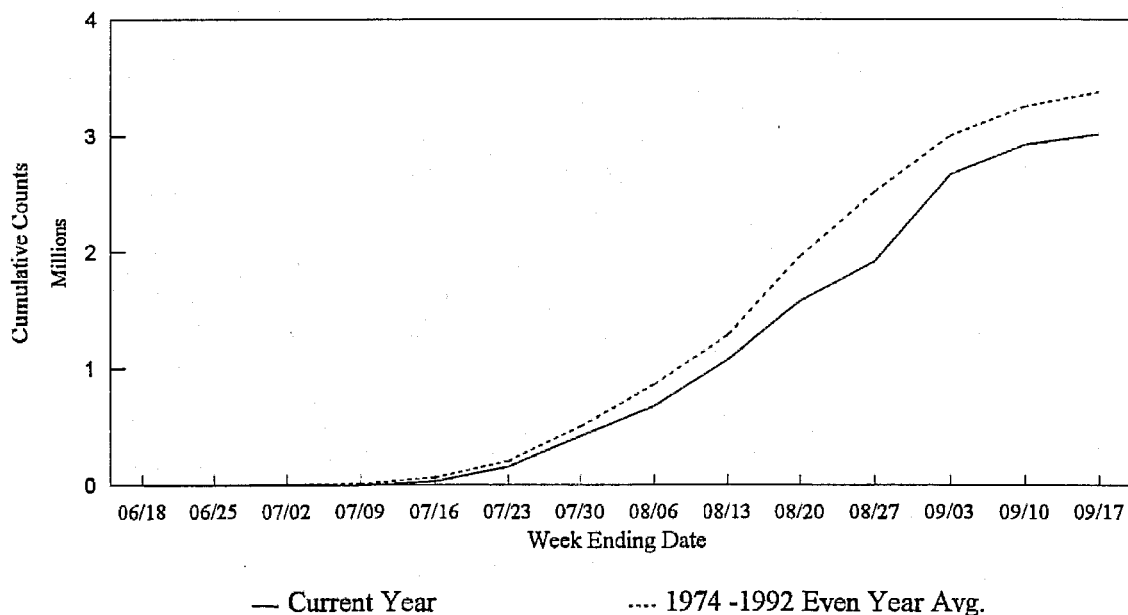
^b The adjusted total is an escapement estimate based on a geometric method used since the inception of the systematic survey program in the early 1960's. In this method, aerial observers are assumed to count without error or bias. Linear interpolations between observations are used to estimate numbers of fish in the stream on days when no surveys are flown. All daily observations and interpolations are summed across the season. Because fish seen on day $t+1$ may include fish seen on day t , the sum of all daily observations and interpolations must be divided by some residence time for fish in the streams to account for duplicate observations. The residence time of 17.5 days which has historically been used in this calculation is from tagging data completed by National Marine Fisheries Service on Olsen Creek pink salmon in the early 1960's. Since observer bias does occur and since both observer bias and stream life are stream specific, adjusted totals in this table may be used for interannual comparisons but should not be interpreted as the true escapement.

PWS PINK STREAM COUNTS - ALL DISTRICTS

CURRENT YEAR VS. 1974 - 92 EVEN YEAR AVERAGE

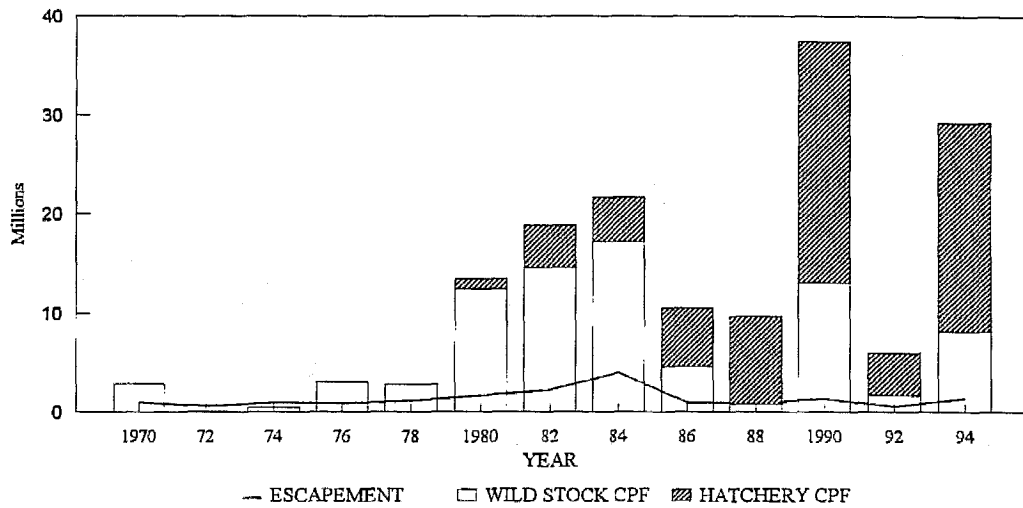


CUMULATIVE

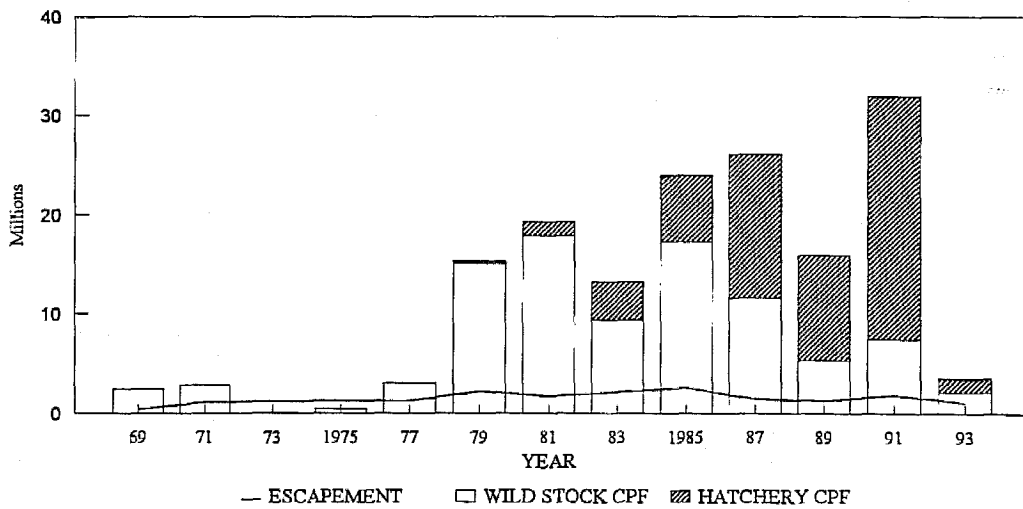


Appendix E.7. Current year and historical weekly pink salmon escapement performance of index spawning streams, Prince William Sound, 1994.

PINK SALMON EVEN YEAR CATCH AND ESCAPEMENT PRINCE WILLIAM SOUND



PINK SALMON ODD YEAR CATCH AND ESCAPEMENT PRINCE WILLIAM SOUND



Appendix E.8. Pink salmon catch and escapement, even years (1970-94), and odd years (1969-93), Prince William Sound, Alaska.

Appendix E.9. Chum salmon harvests and escapement indices, including hatchery sales harvests and brood stock, Prince William Sound, 1965 - 1994.

CHUM SALMON ESCAPEMENTS ^a													
Year	Eastern	Northern	Coghill	Northwestern	Eishumy	Southwestern	Montague	Southeastern	Hatchery			Common Property Catch	Total Run
									Total	Sales	Brood		
1965	69,180	20,980	20,768	18,907	0	1,829	17,500	46,480	195,644			201,043	396,687
66	75,690	24,870	10,540	5,770	0	2,180	14,100	9,410	142,560			426,628	569,188
67	74,570	23,270	7,450	1,670	0	6,200	4,980	9,070	127,210			274,234	401,444
68	48,960	10,620	8,780	800	0	580	220	4,610	74,570			342,939	417,509
69	58,690	17,340	8,410	780	0	0	0	6,320	91,540			320,977	412,517
1970	34,430	4,020	11,880	2,720	0	550	0	7,950	61,550			230,661	292,211
71	49,730	11,870	6,600	5,600	100	1,430	27,990	6,450	109,770			574,265	684,035
72	112,950	70,760	28,160	22,980	0	4,010	3,340	26,990	269,190			45,370	314,560
73	213,170	140,030	72,610	13,250	0	1,020	3,110	48,080	491,270			729,839	1,221,109
74	72,010	55,510	29,280	6,580	0	240	80	3,200	166,900			88,544	255,444
1975	30,040	8,910	3,640	430	0	1,280	140	2,850	47,290			100,479	147,769
76	16,260	29,430	25,670	8,300	0	90	0	770	80,520			370,478	450,998
77	47,880	48,600	43,940	10,090	0	700	0	8,280	159,490			575,839	735,329
78	90,250	27,480	18,160	12,940	0	790	0	6,550	156,170			485,147	641,317
79	42,630	17,320	6,330	8,770	0	90	0	5,140	80,280			324,040	404,320
1980	26,720	27,880	23,340	3,060	0	2,040	70	6,710	89,820	6		412,948	502,774
81	71,560	28,670	2,050	15,130	0	710	0	16,010	134,130	118		1,745,869	1,880,117
82	146,120	68,580	22,130	21,880	0	1,530	0	25,260	285,500	0	86,200	1,335,368	1,707,068
83	143,800	85,720	61,410	31,660	340	3,170	0	21,410	347,510	0	44,000	1,030,546	1,422,056
84	129,190	59,080	19,690	7,920	0	20	0	8,650	224,550	4,886	3,000	1,196,785	1,429,221
1985	111,310	33,410	22,140	13,290	0	620	0	4,470	185,240	3,840	0	1,302,090	1,491,170
86	126,690	50,740	13,140	17,420	0	1,890	0	8,830	218,710	20,683	12,523	1,662,366	1,914,282
87	183,620	38,700	24,510	26,460	0	1,690	0	44,020	319,000	2,549	15,574	1,902,063	2,239,186
88	258,560	75,420	39,240	40,780	0	2,350	500	66,930	483,780	42,694	108,271	1,792,616	2,427,361
89	112,080	46,470	22,680	27,430	320	11,690	0	22,640	243,310	129,551	74,513	862,551	1,309,925
1990	115,100	112,480	26,020	37,020	0	80	1,050	7,275	299,025	24,554	107,284	935,284	1,366,147
91	86,360	19,080	6,070	8,960	0	2,800	925	9,203	133,398	13,471	114,814	318,435	580,118
92	48,804	12,903	10,003	11,072	300	2,940	783	3,881	90,686	57,392	183,940	271,176	603,194
93	54,102	24,975	8,430	18,966	0	1,300	30	19,172	126,975	475,148	140,330	706,196	1,448,649
94	40,476	23,942	14,176	12,992	100	2,225	0	4,057	97,968	380,365	114,654	677,848	1,270,835
1965-93 AVG	91,395	41,211	20,796	13,815	37	1,856	2,580	15,745	187,434	55,349	74,204	709,130	953,990

^aCoghill and Northwestern escapement figures correspond to current district boundaries.

^bIncludes the common property harvest of both wild and hatchery stocks. Does not include hatchery sales harvests.

^cRepresents the sum of the common property catch, hatchery sales and brood, plus the escapement index. Does not account for wild stock escapement into non-index streams.

Appendix E.10. Weekly aerial estimates of chum salmon escapement by statistical area, Prince William Sound, 1994.

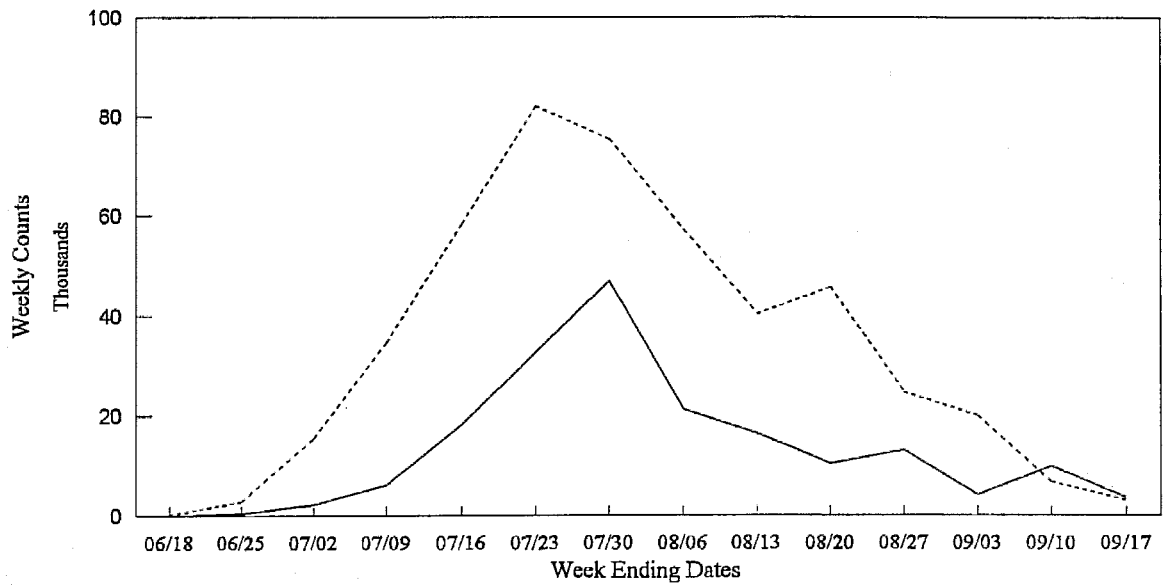
Survey Location	Week Ending Dates ^a														Adjusted Total ^b
	05/18	05/25	07/02	07/09	07/16	07/23	07/30	08/06	08/13	08/20	08/27	09/03	09/10	09/17	
Orca Inlet	NS	0	NS	0	0	0	0	500	0	800	500	NS	0	0	1,410
Simpson & Sheep Bay	0	1	2	70	995	1,900	1,350	900	2,025	800	NS	100	50	0	4,178
Port Gravina	0	452	1900	2800	4100	5700	6900	2500	3900	2000	NS	0	50	0	12,996
Port Fidalgo	NS	0	0	128	550	1,200	1,700	500	1,970	1,200	NS	300	5,200	1,600	7,900
Valdez Arm	0	7	10	525	1,610	3,250	4,460	1,300	1,800	3,300	NS	0	2,150	685	12,209
Port Valdez	NS	0	NS	0	0	NS	NS	10	NS	400	NS	0	0	NS	1,783
Eastern District Total	0	460	1,912	3,520	7,255	12,650	14,920	5,200	10,495	8,200	NS	400	7,450	2,295	40,476
Columbia & Long Bay	0	0	15	350	2,325	5,000	5,450	1,100	1,100	900	NS	0	200	NS	7,350
Wells Bay & Unakwik Inlet	0	30	400	2,301	6,050	7,700	4,900	0	0	0	1,500	0	100	400	14,492
Eagle Bay	NS	NS	NS	0	0	25	2,050	250	0	0	200	0	200	0	2,100
Northern District Total	0	30	415	2,651	8,375	12,475	15,200	5,250	1,100	900	1,700	0	500	400	23,942
Upper Unakwik Inlet	NS	NS	NS	0	0	0	0	0	NS	0	0	0	0	0	0
Unakwik District (229) Total	NS	NS	NS	0	0	0	0	0	NS	0	0	0	0	0	0
West Side Port Wells	NS	NS	NS	0	110	1450	1550	3900	370	1400	5250	1550	2000	500	9256
Esther Passage	NS	NS	NS	0	0	0	0	0	0	0	0	0	0	0	NS
College Fjord	NS	NS	NS	0	18	1405	3000	1000	0	0	3200	1000	0	0	NS
Coghill District Total	NS	NS	NS	0	128	2,855	4,550	4,900	370	1,400	8,450	2,550	2,000	600	14,176
Passage Canal & Cochrane	NS	NS	NS	60	256	3,275	5,400	0	2,000	0	2,550	1,300	0	450	8,092
Culross Passage	NS	NS	NS	0	0	50	200	0	0	0	0	0	0	0	200
Port Nellie Juan	NS	NS	NS	0	1,360	1,250	4,550	NS	0	0	500	0	0	0	4,700
Northwestern District Total	NS	NS	NS	60	1,616	4,575	10,150	0	2,000	0	3,050	1,300	0	450	12,992
Crafton/Estuary	NS	NS	NS	NS	NS	0	100	0	0	0	0	0	0	0	100
Estuary District Total	NS	NS	NS	NS	NS	0	100	0	0	0	0	0	0	0	100
Chenga Is. & Dangerous P.	NS	NS	NS	NS	300	0	425	2,200	0	0	0	0	0	NS	2,225
East Knight Is.	NS	NS	NS	NS	0	0	0	0	0	0	0	0	0	NS	0
Bainbridge & Latouche Pass	NS	NS	NS	NS	0	0	0	0	0	0	0	0	0	NS	0
Port Bainbridge	NS	NS	NS	NS	NS	0	0	0	0	0	0	0	0	NS	0
Southwestern District Total	NS	NS	NS	NS	300	0	425	2,200	0	0	0	0	0	NS	2,225
Montague Strait	NS	NS	NS	NS	NS	0	0	0	0	0	0	0	0	NS	0
Green Island	NS	NS	NS	NS	NS	0	0	0	0	0	0	0	0	NS	0
Montague District Total	NS	NS	NS	NS	NS	0	0	0	0	0	0	0	0	NS	0
Orca Is. & East Hawkins	NS	NS	NS	NS	NS	0	NS	0	0	0	0	0	0	NS	0
Hawkins Cutoff	NS	NS	NS	NS	NS	0	100	0	0	0	0	0	0	NS	100
North Hawkins & Canoe P.	NS	NS	NS	NS	NS	0	NS	0	0	0	0	0	0	NS	0
Double Bay	NS	NS	NS	NS	NS	40	400	150	0	0	0	0	0	NS	400
Johnstone Point	NS	NS	NS	NS	NS	180	350	300	0	300	0	0	0	NS	447
Port Etches	NS	NS	NS	NS	NS	400	0	1,010	2,200	0	0	0	0	NS	3,110
Southeast District Total	NS	NS	NS	NS	NS	620	750	1,560	2,500	0	0	0	0	NS	4,057
TOTAL OF 9 DISTRICTS	0	490	2,327	6,231	18,294	32,705	46,905	21,350	16,465	10,500	13,200	4,250	9,950	3,735	97,988

^a There are a total of 209 streams included in the systematic aerial survey program. The survey program commences in the Eastern District where the earliest escapements in the Sound occur. Weather and conditions permitting, each stream is flown weekly. Failure to fly a survey due to run timing or bad survey conditions is denoted by NS (no survey). A notation of NC (no count) occurs when a stream is flown but no count is possible because of survey conditions (ie. water clarity). During the peak of the pink salmon run many streams are flown twice weekly to provide fisheries managers with more timely escapement data. In cases where more than one survey per week was flown the weekly observation shown in this table is the average of the two counts if observing conditions during both surveys were good or, the maximum of the two counts if conditions during the minimum count were poor.

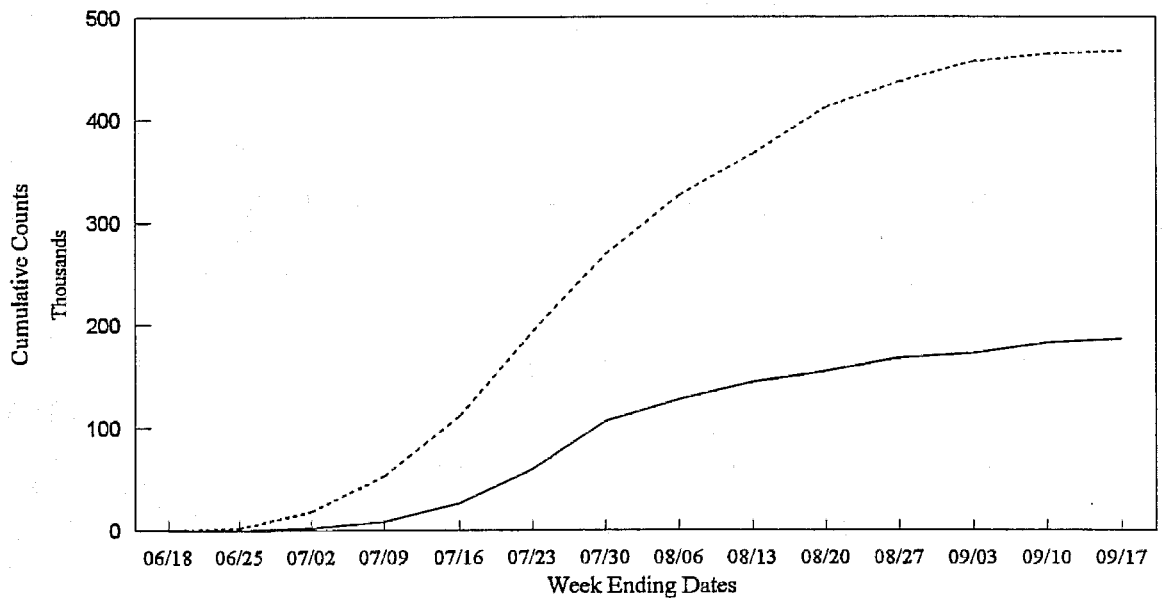
^b The adjusted total is an escapement estimate based on a geometric method used since the inception of the systematic survey program in the early 1960's. In this method, aerial observers are assumed to count without error or bias. Linear interpolations between observations are used to estimate numbers of fish in the stream on days when no surveys are flown. All daily observations and interpolations are summed across the season. Because fish seen on day $t+1$ may include fish seen on day t , the sum of all daily observations and interpolations must be divided by some residence time for fish in the streams to account for duplicate observations. The residence time of 17.5 days which has historically been used in this calculation is from tagging data completed by National Marine Fisheries Service on Olsen Creek pink salmon in the early 1960's. Since observer bias does occur and since both observer bias and stream life are stream specific, adjusted totals in this table may be used for interannual comparisons but should not be interpreted as the true escapement.

PWS CHUM STREAM COUNTS - ALL DISTRICTS

CURRENT YEAR VS. 1980-93 HISTORICAL AVERAGE



CUMULATIVE



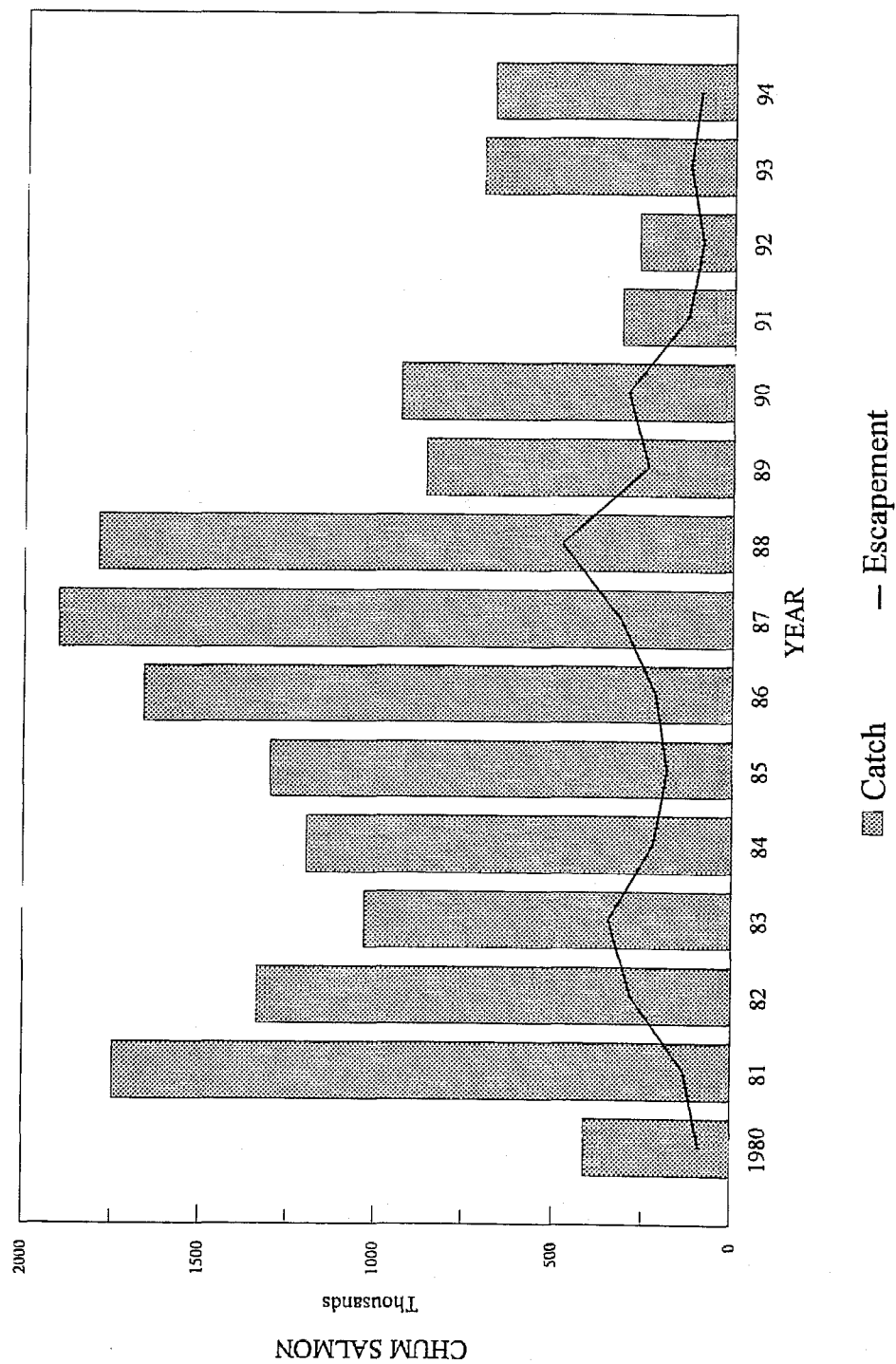
— Current Year

--- Historic 1980-93 Average

Appendix E.11. Current year and historical weekly chum salmon escapement performance from index spawning streams, Prince William Sound, 1994.

CHUM SALMON CATCH AND ESCAPEMENT

PRINCE WILLIAM SOUND



Appendix E.12. Chum salmon catch and escapement, Prince William Sound, 1980-1994.

Appendix E.13. Sockeye salmon escapement counts from selected systems, Prince William Sound, 1994.^a

Stream Name	Stream Number	Weekly Count (week ending dates)											
		07/09	07/16	07/23	07/30	08/06	08/13	08/20	08/27	09/03	09/10	09/17	
Billy's Hole	218	0	0	0	150	38	0	0	NS	0	0	0	NS
Cowpen Lake	242	0	0	0	5	200	0	0	0	0	30	20	NS
Miners Lake	244	0	0	2,000	1,800	525	0	250	175	NS	30	NS	NS
Red Lake	300	0	0	90	100	0	70	0	0	0	0	0	NS
Halferty Creek	454	0	0	0	20	NS	110	50	40	75	0	0	0
Cochrane Creek	461	0	0	0	0	NS	0	0	0	0	0	0	0
Shrode Lake	476	0	0	300	150	NS	445	0	110	375	50	40	NS
Culross Creek	479	0	0	0	0	0	0	0	0	0	0	NS	NS
Jackpot Lakes	608	NS	300	200	100	80	30	300	300	750	0	NS	NS
Bainbridge	630	NS	0	0	100	10	20	80	300	30	0	NS	NS
Point Creek	702	NS	NS	0	0	0	0	0	0	0	0	NS	NS
Cabin Creek	747	NS	NS	0	0	0	0	0	0	0	0	NS	NS
Total		0	300	2,590	2,425	853	675	680	925	1,230	110	60	

^aCounts contained in this table are obtained in conjunction with the regular pink and chum aerial survey program. Many of these sockeye systems are difficult to survey and thus the counts do not necessarily represent total live abundance at a particular time.

Appendix E.14. Estimated age and sex composition of Prince William Sound commercial common property catches chum salmon by district, 1994.

		Brood Year and Age Group				
		1991	1990	1989	1988	Total
		0.2	0.3	0.4	0.5	
Eastern District						
Strata Combined:	06/26 - 07/23					
Sampling dates:	07/09 - 07/23					
Sample size:	647					
Female	Percent of sample	1.3	15.2	42.7	4.5	63.7
	Number in catch	382	4,514	12,701	1,349	18,945
Male	Percent of sample	0.4	3.6	30.1	2.0	36.1
	Number in catch	118	1,073	8,970	599	10,760
Total	Percent of sample	1.7	18.8	73.0	6.5	100.0
	Number in catch	500	5,586	21,730	1,948	29,764
	Standard error	168	494	557	303	
Northern District						
Stratum dates:	07/17 - 08/27					
Sampling dates:	08/04 - 08/04					
Sample size:	373					
Female	Percent of sample	2.4	13.7	46.9	3.8	66.8
	Number in catch	634	3,594	12,332	987	17,547
Male	Percent of sample	0.5	4.3	27.3	1.1	33.2
	Number in catch	141	1,128	7,188	282	8,738
Total	Percent of sample	2.9	18.0	74.3	4.8	100.0
	Number in catch	775	4,721	19,520	1,268	26,285
	Standard error	231	523	596	292	
Coghill District (Esther Subdistrict)						
Strata Combined:	06/12 - 07/24					
Sampling dates:	06/14 - 07/23					
Sample size:	2,514					
Female	Percent of sample	0.9	10.6	48.4	5.7	65.6
	Number in catch	4,789	57,727	262,752	30,849	356,117
Male	Percent of sample	0.4	4.0	27.4	2.6	34.4
	Number in catch	2,438	21,467	148,593	14,061	186,559
Total	Percent of sample	1.3	14.6	75.8	8.3	100.0
	Number in catch	7,227	79,194	411,666	44,910	542,997
	Standard error	1,361	4,153	5,355	3,641	

-Continued-

		Brood Year and Age Group				
		1991	1990	1989	1988	Total
		0.2	0.3	0.4	0.5	
Southwestern District						
Stratum dates:	07/25 - 08/05					
Sampling dates:	08/04 - 08/04					
Sample size:	105					
Female	Percent of sample	1.0	17.1	51.4	1.0	70.5
	Number in catch	89	1,607	4,822	89	6,608
Male	Percent of sample	1.0	3.8	23.8	1.0	29.5
	Number in catch	89	357	2,232	89	2,768
Total	Percent of sample	1.9	21.0	75.2	1.9	100.0
	Number in catch	179	1,964	7,054	179	9,376
	Standard error	126	374	397	126	
All Districts Combined						
Strata Combined:	06/12 - 08/27					
Sampling dates:	06/14 - 08/04					
Sample size:	3,639					
Female	Percent of sample	1.0	11.1	48.1	5.5	65.6
	Number in catch	5,894	67,442	292,607	33,274	399,217
Male	Percent of sample	0.5	3.9	27.4	2.5	34.3
	Number in catch	2,786	24,024	166,983	15,031	208,825
Total	Percent of sample	1.4	15.0	75.6	7.9	100
	Number in catch	8,680	91,467	459,970	48,305	608,422

Appendix E.15. Summary of periods, dates, hours open, and emergency orders issued by district, for the commercial purse seine salmon fishery, Prince William Sound, 1994. The Northwestern, Montague, and Southeastern districts were closed the entire season. See Appendix C.10. for Unakwik District openings.

Eastern (221)		Northern (222)		Coghill (223)		Southwestern (226)		Emergency Orders Issued
Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	
6/30	12 a							2-F-E-21-94
7/03-7/04	36 b							2-F-E-24-94, 2-F-E-25-94
7/08	15 c							2-F-E-28-94, 2-F-E-30-94
7/10	15 d							2-F-E-31-94
7/13	12 e							2-F-E-36-94, 2-F-E-37-94, 2-F-E-39-94
								2-F-E-40-94, 2-F-E-41-94
7/17	15 f	7/17	15 g					2-F-E-42-94
7/20	15 f			7/21-7/22	24 h			2-F-E-43-94
								2-F-E-45-94
7/22	15 f	7/22	15 g					2-F-E-46-94, 2-F-E-47-94
7/24-7/25	36 i			7/25-7/26	24 h	7/25	15 j	2-F-E-48-94, 2-F-E-49-94
7/27	15 k							2-F-E-50-94
7/30	12 l	7/30	12 l			7/30	12 m	2-F-E-53-94, 2-F-E-54-94
		8/01	12 n			8/01	12 j	2-F-E-57-94
8/03	12 o	8/03	12 p			8/03	12 q	2-F-E-58-94
8/05	12 o	8/05	12 g			8/05	12 q	2-F-E-62-94
8/09	12 o	8/09	12 r	8/09	12 s			2-F-E-66-94
8/11	12 o	8/11	12 t	8/11	12 u			2-F-E-68-94
8/13	12 o	8/13	12 v	8/13	12 u			2-F-E-69-94
		8/15	12 w	8/15	12 u			2-F-E-72-94
		8/17	12 x	8/17	12 u			2-F-E-73-94
		8/19	12 x	8/19	12 u			2-F-E-76-94
		8/21	12 y	8/21	12 u			2-F-E-78-94
		8/23	12 y	8/23-8/24	36 u			2-F-E-79-94
		8/25-8/27	60 y	8/25-8/27	60 z			2-F-E-81-94
		8/28-8/31	84 aa	8/28-8/31	84 bb	8/28-8/31	84 cc	2-F-E-84-94
		9/01-9/04	84 aa	9/01-9/04	84 bb	9/01-9/04	84 cc	2-F-E-85-94
		9/05-9/30	612 aa	9/06	12 dd	9/05-9/30	612 cc	2-F-E-87-94, 2-F-E-92-94
9/10	12 ee							2-F-E-90-94
9/12-9/16	108 ee							2-F-E-90-94
9/19-9/23	108 ee							2-F-E-90-94
9/26-9/30	108 ee							2-F-E-90-94

- a Open waters included the Valdez Narrows Subdistrict east of a line from Potato Point to Entrance Point and west of 146 30.5' W. longitude.
- b The Valdez Narrows Subdistrict was open. The Solomon Gulch Special Harvest Area was closed. Effective 10:30 a.m. July 3, waters between the light pole on the western side of Allison Point and within 200 yards of the easternmost berth of the Alyeska Marine Terminal were open for the remainder of the commercial fishing period.
- c Open waters included the Valdez Narrows Subdistrict east of a line from Potato Point to Entrance Point and west of a line from an orange buoy on the south shore located at 146 25.25' W. longitude to a marker on the north shore located at 146 23.9' W. longitude.
- d Open waters included waters of the Valdez Narrows Subdistrict west of a line from a marker on the south shore at approximately 146 27' W. longitude to a marker on the north shore at 146 23.9' W. longitude.
- e The opening included waters of Port Valdez east of 146 30.5' W. longitude. Waters within 500 yards of the south shore of Port Valdez from the head of the Port to a marker west of the Alyeska Security Zone at approximately 146 27' W. longitude were closed.
- f Open waters were north of Black Point at 60 54.6' N. latitude including Valdez Narrows and Port Valdez. The opening excluded Galena Bay east of a line from Rocky Point at 60 57.6' N. lat., 146 45.0' W. long., to 60 58.1' N. lat., 146 43.1' W. long. Waters within 500 yards of the south shore of Port Valdez were closed. On July 22, waters within 700 yards were closed. (See EO for further detail)
- g Open waters included waters east of Granite Point at 147 23.0' W. longitude.
- h The opening included the Wally Noerenberg Hatchery Special Harvest Area except that waters within 50 yards of the hatchery barrier seine were closed. The Wally Noerenberg Hatchery Terminal Harvest Area and the waters of Esther Bay north of 60 48.1' N. latitude were also open.

- Continued -

- i The Valdez Narrows Subdistrict was open. The south shore of Port Valdez was closed from a line approximately 700 yards offshore at the head of the Port near the VFDA net pens, and tapering to a point approximately 500 yards offshore at Allison Point and tapering to a point approximately 200 yards offshore on the west side of Allison Point. The 200 yard closure continued on the south shore across the Alyeska Security Zone to a marker on the west of Sawmill Creek at approximately 146 27' W. longitude.
- j The Point Elrington Subdistrict was open.
- k Open waters included waters north of Black Point at 60 54.6' N. latitude including Valdez Narrows and Port Valdez. The south shore of Port Valdez was closed from a line approximately 700 yards offshore at the head of Port Valdez near the VFDA net pens, and tapering to a point 500 yards offshore at Allison Point and tapering to a point approximately 200 yards offshore west of Allison Point. The 200 yard closure continued on the south shore.
- l Waters north of Black Point at 60 54.6' N. latitude and south of a line from Entrance Point to Potato Point were open. Port Valdez and Valdez Narrows were closed. Waters open in the Northern District included waters east of Point Pellew at 147 39.5' W. longitude. Unakwik Inlet, Wells, Granite and Cedar Bays were closed north of the latitude of Payday Point at 60 53.5' N. latitude.
- m Waters south of a line at the latitude of Dual Head at 60 15' N. lat., and waters east of Knight Island south of Marsha Bay at 60 19' N. lat. were open. Waters of the Port San Juan Subdistrict were closed.
- n The opening included waters west of Granite Point at 147 23.0' W. longitude and east of Point Pellew at 147 39.5' W. longitude. Waters of Unakwik Inlet were open, however Jonah and Siwash Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to each of those bays. Wells, Cedar and Granite Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.
- o Waters open were north of Black Point at 60 54.6' N. latitude and Port Valdez west of 146 30.5' W. longitude.
- p Open waters were those waters east of Point Pellew at 147 39.5' W. longitude. Unakwik Inlet was closed north of Payday Point at 60 53.5' N. latitude. Wells, Cedar and Granite Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to each of those bays.
- q Waters south of a line at the latitude of Dual Head at 60 15' N. lat. and waters east of Knight Island south of Marsha Bay at 60 19' N. lat. were open. Waters of the Port San Juan Subdistrict and the Point Elrington Subdistrict were closed as well as the waters of Latouche Passage south of a line from Bishop Rock to Point Grace and north of a line from the southernmost point of Latouche Island to the eastern boundary of the Point Elrington Subdistrict at 148 10' W. longitude. On August 5, waters of Shelter Bay were also closed from the northwest tip of Evans Island at 60 09.6' N. latitude, 147 58.5' W. longitude to the western boundary of the Port San Juan Subdistrict at Evans Point.
- r Waters east of the westernmost point of Bald Head Chris Island including Unakwik Inlet were open. The Cannery Creek Hatchery Special Harvest Area was closed. Granite, Wells, Cedar, Jonah and Siwash Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.
- s Open waters included waters within one nautical mile of Esther Island. The Terminal Harvest Area of Quillian Bay and the outer portion of Lake Bay south of 60 47.6' N. latitude were also open.
- t Waters east of the westernmost point of Bald Head Chris Island were open. However, waters of Unakwik Inlet north of Payday Point at 60 53.5' N. latitude were closed. Granite, Wells and Cedar Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.
- u Waters of the Esther Subdistrict within one nautical mile of Esther Island were open, however waters of Lake and Quillian Bays inside of a line from Hodgkin Point to Esther Light were closed.
- v Open waters included waters east of the westernmost point of Bald Head Chris Island. The waters of Unakwik Inlet north of 60 59' N. latitude were closed. Granite, Wells, Cedar and Siwash Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.
- w Waters east of the westernmost point of Bald Head Chris Island and west of Granite Point at 147 23.0' W. longitude were open. Waters of Unakwik Inlet north of 60 54.5' N. latitude were closed. Granite, Wells and Cedar Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.
- x Waters open included waters east of the westernmost point of Bald Head Chris Island and west of Granite Point at 147 22.0' W. longitude. Waters of Unakwik Inlet north of 60 54.5' N. latitude were closed. Granite, Wells and Cedar Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays.
- y Waters east of Point Pellew at 147 39.5' W. longitude and west of Granite Point at 147 22.0' W. longitude were open. Waters of Unakwik Inlet north of 60 54.5' N. latitude were closed. Granite, Wells and Cedar Bays were closed inside of the yellow Salmon Harvest Task force markers at the entrances to those bays.
- z Waters within one nautical mile of Esther Island were open, however the Noerenberg Hatchery Special Harvest Area was closed.
- aa Open waters included waters east of Point Pellew at 147 39.5' W. longitude and west of Granite Point at 147 22.0' W. longitude. The waters of Unakwik Inlet south of 60 59' N. latitude were also open. Granite, Wells and Cedar Bays were closed inside of the yellow Salmon Harvest Task Force markers at the entrances to those bays. The season officially closed at 8:00 p.m. September 30.
- bb Waters within one nautical mile of Esther Island were open. The Noerenberg Hatchery Terminal Harvest Area was also open.
- cc Waters of Sawmill Bay west of 148 3.2' W. longitude were open, however waters within 100 yards of the hatchery barrier seine were closed. The season officially closed at 8:00 p.m. September 30.
- dd Only the Noerenberg Hatchery Terminal Harvest area was open to purse seine gear and did not reopened to purse seine gear in 1994.
- ee Waters of the Port Valdez Subdistrict within 1,000 yards of the south shore of Port Valdez from Allison Point to the closed waters at the head of Port Valdez were open. The season officially closed at 8:00 p.m. September 30.

APPENDIX F

HATCHERY RETURNS

Appendix F.1. Daily salmon sales harvests and sex ratios at the Wally Noerenberg Hatchery, 1994. Brood stock and sex ratio data provided by the Prince William Sound Aquaculture Corporation.

HATCHERY SALES HARVESTS IN NUMBERS OF FISH						Pink Salmon %
Date	Pinks	Chinook	Chum	Coho	Sockeye	Female
06/06	0	337	7,861	0	0	
06/07	0	36	6,397	0	0	
06/09	0	58	9,643	0	0	
06/10	0	157	6,411	0	0	
06/11	0	14	6,249	0	0	
06/12	0	158	6,011	0	0	
06/15	0	64	4,743	0	0	
06/19	0	11	2,675	0	0	
06/22	0	0	3,664	0	0	
06/23	0	0	6,111	0	0	
06/24	0	0	10,495	0	0	
06/25	0	0	16,358	0	0	
06/26	0	0	11,650	0	0	
06/27	0	0	5,469	0	0	
06/28	0	0	11,228	0	0	
06/29	0	0	25,844	0	0	
06/30	0	0	16,618	0	0	
07/01	0	0	19,217	0	0	
07/02	0	0	19,051	0	0	
07/03	0	0	8,938	0	0	
07/05	0	0	12,272	0	0	
07/06	0	0	18,016	0	0	
07/07	0	0	6,039	0	0	
07/08	0	0	6,272	0	0	
07/09	0	0	6,627	0	0	
07/10	0	0	13,840	0	0	
07/13	0	0	20,313	0	0	
07/14	0	0	10,501	0	0	
07/15	0	0	8,706	0	0	
07/16	0	0	17,219	0	0	
07/19	0	0	7,729	0	0	
07/20	0	0	8,904	0	0	
07/22	0	0	8,553	0	0	
07/24	555	0	9,415	0	0	
07/28	9,505	0	2,818	0	0	
07/31	41,970	0	5,011	0	0	6.2%
08/02	57,654	0	1,458	0	0	8.3%
08/03	45,632	0	4,244	0	0	16.3%
08/04	43,577	0	445	0	0	13.1%
08/05	65,931	0	790	0	0	13.1%
08/06	65,812	0	0	0	0	15.6%
08/07	114,962	0	570	0	0	19.6%
08/08	323,538	0	0	0	0	23.1%

-Continued-

Appendix F.1. (page 2 of 2)

HATCHERY SALES HARVESTS IN NUMBERS OF FISH						Pink Salmon %
Date	Pinks	Chinook	Chum	Coho	Sockeye	Female
08/10	183,844	0	0	0	0	34.6%
08/11	36,749	0	0	0	0	37.1%
08/12	196,366	0	0	0	0	40.4%
08/14	180,110	0	0	0	0	46.7%
08/15	58,180	0	0	0	0	50.3%
08/16	130,586	0	0	0	0	54.7%
08/17	120,312	0	0	0	0	54.0%
08/18	214,598	0	0	0	0	60.7%
08/19	49,588	0	0	0	0	61.5%
08/20	111,120	0	0	0	0	57.4%
08/21	50,502	0	0	32	0	58.6%
08/22	89,725	0	0	548	0	59.3%
08/23	118,525	0	0	2,194	0	57.1%
08/24	75,540	0	0	1,237	0	56.7%
08/25	20,606	0	0	171	0	55.2%
09/04	72	0	0	874	0	71.4%
09/15	1,967	0	0	4,374	0	69.8%
Totals	2,407,526	835	374,375	9,430	0	

	Pink	Chinook	Chum	Coho	Sockeye
Pounds Sold	8,454,957	9,606	3,143,114	78,941	0
Average Weights:	3.51	11.50	8.40	8.37	0
Average Price/Lb:	\$0.190	\$1.190	\$0.500	\$0.650	\$0.000
Roe Sales/Lbs:	58,777	0	0	2,587	0
Average Price/Lb:	\$3.710	\$0.000	\$0.000	\$3.250	\$0.000

BROOD STOCK SUMMARY:

	PINK	CHINOOK	EARLY CHUM	COHO
Fish spawned at hatchery	168,230	156	80,476	1,010
Green/bad	13,621	161	29,133	1,310
Eggtake mortality	7,681	35	2,729	425
Total available brood stock	189,532	352	112,338	2,745
Surplus processed for roe/excessed	198,160	0	0	4,054
Estimated remaining in brood pond	25,000	0	998	309
Estimated remaining in bay	0	0	8,000	0
Estimated unseen mortality	15,000	20	0	2,000
Mortalities prior to eggtake	0	0	0	500
Estimated creek spawners	0	0	0	0
Estimated total return to hatchery	427,692	372	121,336	9,608

Appendix F.2. Daily salmon sales harvests and sex ratios
at the Armin F. Koernig Hatchery, 1994.
Brood stock and sex ratio data provided
by the Prince William Sound Aquaculture
Corporation.

HATCHERY HARVESTS IN NUMBERS OF FISH			Pink Salmon %
Date	Pinks	Sockeye	Female
07/25	10,585	64	
07/26	0	0	10.0%
07/27	19,965	0	8.0%
07/28	0	0	8.2%
07/29	16,632	0	9.4%
07/30	26,406	0	13.3%
07/31	24,578	0	17.0%
08/01	0	0	17.0%
08/02	47,914	0	25.7%
08/03	30,972	0	26.9%
08/04	38,088	0	27.3%
08/05	18,369	0	33.6%
08/06	12,617	0	33.6%
08/07	39,745	0	39.5%
08/08	62,118	0	39.5%
08/09	25,018	0	45.2%
08/10	30,621	0	45.2%
08/11	63,200	0	48.8%
08/12	48,175	0	49.8%
08/13	0	0	51.9%
08/14	77,762	0	56.7%
08/15	40,324	0	55.8%
08/16	45,410	0	57.4%
08/17	60,356	0	60.9%
08/18	94,714	0	56.0%
08/19	55,750	0	58.3%
08/20	33,988	0	56.7%
08/21	39,035	0	57.9%
08/22	24,024	0	56.8%
08/23	37,026	0	58.5%
08/24	26,585	0	60.5%
08/25	26,707	0	59.4%
08/26	0	0	60.8%
08/27	57,460	0	66.8%
08/28	26,215	0	66.8%
Totals	1,160,359	64	
Pounds Sold	4,051,449	299	

Average Weight: 3.49 lbs. 4.67 lbs.
Average Price/Lb.: \$0.200 \$1.070

Roe Sales/Lbs: 28,053
Average Price/Lb.: \$3.710

PINK BROOD STOCK SUMMARY:

Spawned at hatchery	110,556
Excessed	47,922
Green/overripe	4,948
Fishway/system mortality	5,637
<u>Total available brood stock</u>	<u>169,063</u>
Surplus processed for roe	42,821
Estimated diversion channel mortality	7,000
Estimated unseen mortality	37,281
Fish estimated remaining in bay	1,000
<u>Fish estimated remaining behind barrier seine</u>	<u>12,000</u>
Estimated total return to hatchery (not sold)	269,165

Appendix F.3. Daily pink salmon sales harvests and sex ratios at the Solomon Gulch Hatchery, 1994. Sex ratios and brood stock data provided by Valdez Fisheries Development Association, Inc.

Date	FISH SALES						
	Pinks		% Female	Coho		Chum	
	Daily	Cumulative		Daily	Cumulative	Daily	Cumulative
06/20	31,734	31,734		0	0	333	333
06/21	33,802	65,536	16.9%	0	0	133	466
06/22	35,017	100,553	12.2%	0	0	148	614
06/23	36,120	136,673	16.6%	0	0	137	751
06/24	55,854	192,527	15.6%	0	0	181	0
06/25	72,612	265,139	16.9%	0	0	245	996
06/26	129,150	394,289	20.4%	0	0	402	1,398
06/27	102,222	496,511	19.7%	1	1	305	1,703
06/28	225,632	722,143	18.6%	1	2	409	2,112
06/29	182,932	905,075	23.3%	0	2	86	2,198
07/01	248,910	1,153,985		0	2	43	2,241
07/02	209,469	1,363,454	16.7%	0	2	31	2,272
07/05	96,450	1,459,904	28.9%	0	2	31	2,303
07/06	95,947	1,555,851		0	2	209	0
07/07	294,566	1,850,417		0	2	106	2,409
07/09	119,240	1,969,657	25.5%	0	2	16	2,425
07/11	309,091	2,278,748	46.6%	0	2	17	2,442
07/12	141,682	2,420,430	35.0%	0	2	13	0
07/14	112,637	2,533,067		0	2	2	0
07/15	282,153	2,815,220		1	3	7	2,449
07/16	152,456	2,967,676		0	3	1	2,450
07/19	70,664	3,038,340		0	3	9	0
07/21	143,303	3,181,643		0	3	4	2,454
07/23	203	3,181,846	72.0%	0	3	0	2,454
09/06	0	3,181,846		2,157	2,160	0	2,454
09/07	0	3,181,846		1,364	3,524	0	2,454
09/08a	0	3,181,846		9,498	13,022	0	2,454
Totals	3,181,846			13,022		2,868	
Total Pounds	9,530,078			100,550		25,479	

aVFDA sold 53,515 lbs. of pink salmon roe, 20 lbs. of chum salmon roe, and 8,827 lbs. of coho salmon roe.

PINK BROOD STOCK SUMMARY:

Spawned at hatchery	170,196
Green/overripe	2,906
System mortalities/excessed	83,798
Total available brood stock	256,900
Roe Sales	166,995
Estimated creek spawners	90,000
Fish estimated remaining above weir	500
Estimated total return to hatchery	514,395

CHUM BROOD STOCK SUMMARY:

Spawned at hatchery	807
Green/overripe	508
System mortalities/excessed	1,001
Total available brood stock	2,316
Estimated creek/bay spawners	64
Estimated total return to hatchery	2,380

COHO BROOD STOCK SUMMARY:

Spawned at hatchery	617
Green/overripe	3,055
System mortalities/excessed	15,009
Total available brood stock	18,681
Roe Sales	11,035
Estimated creek/bay spawners	25
Estimated total return to hatchery	29,741

Average Pink Weight: 3.00 pounds
Average Coho Weight: 7.72 pounds
Average price/pound for pinks = \$0.26
Average price/pound for coho = \$0.32
Average price/pound for pink roe = \$3.47
Average price/pound for coho roe = \$4.03

Appendix F.4. Daily salmon sales harvests and sex ratios at the Cannery
Creek Hatchery, 1994. Brood stock and sex ratio data provided
by the Prince William Sound Aquaculture Corporation.

Date	HATCHERY HARVEST IN NUMBERS OF FISH	Pounds	Pink Salmon %
	Pinks	Sold	Female
07/29	38,851	112,668	7.9%
07/30	30,390	89,148	
07/31	12,751	36,978	9.7%
08/01	63,838	189,767	9.0%
08/02	34,597	103,789	18.0%
08/03	23,294	72,210	16.3%
08/04	250,460	780,228	21.4%
08/05	126,802	405,766	29.8%
08/06	162,802	529,683	30.1%
08/07	922,888	2,898,645	
08/08	439,640	1,355,748	47.4%
08/09	57,180	188,694	49.0%
08/10	168,128	554,821	53.1%
08/11	77,265	254,973	58.0%
08/12	274,142	958,544	60.3%
08/13	101,926	356,742	64.5%
08/14	65,583	229,544	
08/15	60,535	215,070	60.0%
08/16	98,114	343,411	66.4%
08/17	96,376	346,953	66.6%
08/18	165,657	596,362	
08/20	60,201	216,052	66.6%
08/22	80,514	273,646	66.4%
08/24	88,501	300,904	70.2%
08/28	58,003	203,010	70.9%
Totals	3,558,438	11,613,356	

Average Weight: 3.26 lbs.

Average Price/Lb.: \$0.190

Roe Sales/Lbs: ^a 17,663

Average Price/Lb.: \$3.710

^a PWSAC also discarded 923 lbs of pink salmon roe.

BROOD STOCK SUMMARY:

Spawned at hatchery	142,107
Excessed	23,851
Green/bad mortality	16,657
Eggtake mortality	180,865
Total available broodstock	363,480
Surplus Processed for Roe	35,355
Estimated stream spawners	10,000
Estimated total return to hatchery (not sold)	408,835

Appendix F.5. Daily salmon sales harvests at the Main Bay Hatchery, 1994.
 Brood stock data provided by the Prince William Sound
 Aquaculture Corporation.

HATCHERY SALES HARVESTS IN NUMBERS OF FISH

Date	Sockeye		Pink		Chum	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
06/20	335	335	0	0	297	297
06/29	1,565	1,900	0	0	502	799
06/30	1,629	3,529	0	0	318	1,117
07/04	2,388	5,917	0	0	361	1,478
07/07	4,376	10,293	0	0	424	1,902
07/10	6,291	16,584	153	153	107	2,009
07/11	1,838	18,422	0	153	90	2,099
07/14	3,533	21,955	177	330	44	2,143
07/24	6,094	28,049	522	852	170	2,313
07/25	6,557	34,606	413	1,265	75	2,388
07/26	5,887	40,493	772	2,037	282	2,670
07/28	2,085	42,578	947	2,984	160	2,830
07/31	3,044	45,622	1,321	4,305	92	2,922
08/01	5,293	50,915	2,502	6,807	137	3,059
08/04	6,738	57,653	8,694	15,501	19	3,078
08/08	2,705	60,358	11,831	27,332	17	3,095
08/10	777	61,135	7,682	35,014	0	3,095
08/14	3,538	64,673	43,414	78,428	0	3,095
08/17	680	65,353	5,672	84,100	0	3,095
08/21	2,362	67,715	37,531	121,631	0	3,095
08/22	4,530	72,245	49,360	170,991	0	3,095
08/24	1,464	73,709	7,783	178,774	0	3,095
08/25	1,067	74,776	8,859	187,633	0	3,095
08/26	1,362	76,138	8,705	196,338	0	3,095
08/27	472	76,610	9,543	205,881	0	3,095
08/28	501	77,111	7,389	213,270	0	3,095
09/03	2,020	79,131	0	213,270	0	3,095
Totals		79,131		213,270		3,095

Pounds Sold	348,602	740,708	28,300
Average Weights:	4.41	3.47	9.14
Average price/pound:	\$1.02	\$0.150	\$0.380
Roe Sales/Lbs:	3,075	10,713	0
Average Price/Lb:	\$3.00	\$3.710	\$0.000

*In addition to the sales harvest, PWSAC processed 45,449 pink salmon for roe extraction.

MAIN BAY SOCKEYE BROOD STOCK SUMMARY:

Onsite Eggtakes

Remote Eggtakes

Main Bay Early Stock/Eyak Lake

Good	75
Green/overripe	44
System mortalities/excessed/bad	277
Total	396

Coghill Lake

Good (MALES ONLY)	193
Green/overripe	0
System mortalities/excessed/bad	36
Total	229

Main Bay Middle Stock/Coghill Lake

Spawned at hatchery	2,399
Green/overripe	577
System mortalities/excessed/bad	8,287
Total available brood stock	11,263
Fish remaining in bay	0
Total	11,263

Eshamy Lake

Good	674
Green/overripe	58
System mortalities/excessed/bad	15
Total	747

Main Bay Late Stock/Eshamy Lake

Spawned at hatchery	651
Green/overripe	1,603
System mortalities/excessed/bad	12,110
Total available brood stock	14,364
Fish remaining in bay	0
Total	14,364

Appendix F.6. Sales harvests of salmon by species from private nonprofit hatcheries as reported on fish tickets, Prince William Sound, 1977 - 1994.^a

Year	Hatchery ^b	Catch by Species				Total
		Sockeye	Coho	Pink	Chum	
1977	AFK			15,545		15,545
1978	AFK			114,188		114,188
1979	AFK			223,748		223,748
1980	AFK, N			346,728	6	346,734
1981	AFK			707,037	118	707,155
1982	AFK			1,354,732		1,354,732
1983	AFK			616,963		616,963
1984	AFK, SG			415,393	4,886	420,279
1985	AFK, SG			1,209,960	3,840	1,213,800
1986	AFK, SG		2,156	905,464	20,683	928,303
1987 ^c	AFK, SG, E, CC		7,015	2,691,190	2,549	2,700,754
1988	AFK, SG, E		6,110	1,632,701	42,694	1,681,505
1989 ^d	AFK, SG, WNH, CC, MB		52,307	7,812,373	131,362	7,996,042
1990	AFK, SG, WNH, CC		14,199	8,732,658	24,554	8,771,411
1991	AFK, SG, WNH, CC		52,625	5,955,561	13,471	6,021,657
1992	AFK, SG, WNH, CC, MB	163,086	73,530	3,049,394	57,392	3,343,402
1993	AFK, SG, WNH, CC, MB	113,738	3,259	2,212,403	475,148	2,804,548
1994	AFK, SG, WNH, CC, MB	79,541	22,454	10,521,439	380,365	11,003,799
TOTAL		276,824	211,201	37,996,038	776,703	39,260,766

^a Includes salmon harvested by private nonprofit hatcheries in Prince William Sound to generate revenues to offset operational costs. Does not include carcass sales or fish processed for roe extraction.

^b Hatcheries: AFK = Armin F. Koernig (PWSAC) (formerly Port San Juan Hatchery)
 E = Esther Hatchery (PWSAC), renamed WNH in 1989
 SG = Solomon Gulch Hatchery (VFDA)
 N = NERKA Inc.
 CC = Cannery Creek (PWSAC)
 WNH = Wally Noerenberg Hatchery (PWSAC) (formerly Esther Hatchery)
 MB = Main Bay (PWSAC) (formerly operated by ADF&G)

^c PWSAC administered a sales harvest at the state owned Cannery Creek hatchery. A majority of the coho salmon sold were carcasses and surplus brood fish from the Solomon Gulch hatchery.

^d PWSAC administered a sales harvest at the state owned Main Bay Hatchery to harvest a surplus of chum salmon due to the closure of the common property fishery.

Appendix F.7. Summary of pink and chum salmon returns to Prince William Sound hatcheries, 1994.

Pink salmon returns to P.W.S. hatcheries.^a

Hatchery	1993 Fry Release (millions)	1994 Forecast Return	Estimated Total Return	Marine Survival	Estimated C.P.F. Contribution	Estimated Sales Harvest Contribution ^b	Escmt. and Broode	Eggs Taken (millions)
Solomon Gulch	141.9	5,150,000	12,735,021	9.0%	9,647,154	2,657,755	423,895	214.5
A. F. Koemig	113.3	5,430,000	1,744,142	1.5%	563,092	950,493	211,884	125.5
Wally Noerenberg	172.1	7,800,000	6,145,508	3.6%	4,162,803	1,582,480	464,972	188.0
Cannery Creek	140.0	6,310,000	9,640,886	6.9%	6,800,224	2,422,854	398,835	158.3
Total Pink Return	567.3	24,690,000	30,265,557	5.3%	21,173,273	7,613,582	1,499,586	686.3

Chum salmon returns to P.W.S. hatcheries.^a

Hatchery	1994 Forecast Return	Estimated Total Return	Estimated C.P.F. Comm Catch	Sales Harvest ^b	Escmt. and Broode	Eggs Taken (millions)
Solomon Gulch	48,960	No estimate made.		2,868	2,316	1.5
A. F. Koemig	0	0	0	0	0	0
Wally Noerenberg ^d	1,135,000	No estimate made.		347,375	112,338	109.1
Cannery Creek	0	0	0	0	0	0
Total Chum Return	1,183,960	0	0	350,243	114,654	110.6

^a Contribution estimates of pink and chum salmon from PWS hatcheries are based on analysis of CWT recoveries and location of catch as reported on fish tickets. No CWT based estimates for hatchery chum returns.

^b Does not include carcass sales which are part of the brood stock.

^c Includes brood stock, overmature/green fish, holding mortalities, excess fish and fish processed for roe extraction. Does not include watershed spawners, unseen mortalities or fish remaining in bay.

^d Includes both early and late chum returns.

Appendix F.8. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Armin F. Koernig Hatchery, Prince William Sound, 1977 - 1994.

Brood Year	Return Year	Fry Releasea	CWT Applied to Fry Releaseb	Brood Stocka	Total Cost Recovery Harveste	Hatchery Contribution to CR Harvestsb	Hatchery Contribution to Other Harvestsd	Hatchery Contribution to the CPFa	Total Hatchery Return	Estimated Marine Survival
1975	1977	1,000,000	0	16,112	15,545	7,745	0	4,000	27,857	2.79%
1976	1978	11,010,577	0	40,432	114,188	114,188	0	0	154,520	1.40%
1977	1979	16,950,784	0	54,207	223,748	223,748	0	275,000	552,955	3.26%
1978	1980	22,774,739	0	108,061	346,728	346,728	0	1,038,700	1,493,489	6.56%
1979	1981	21,500,000	0	198,901	707,037	707,037	0	1,358,907	2,264,845	10.53%
1980	1982	69,787,000	0	164,545	1,354,732	1,354,732	0	3,615,086	5,134,363	7.36%
1981	1983	70,118,000	0	124,278	608,002	608,002	0	2,990,225	3,722,505	5.31%
1982	1984	87,384,533	0	186,431	387,146	387,146	0	2,226,423	2,800,000	3.20%
1983	1985	76,746,000	0	271,513	986,141	986,141	0	3,772,962	5,030,616	6.55%
1984	1986	103,531,000	0	277,706	814,072	814,072	0	3,872,222	4,964,000	4.79%
1985	1987	111,266,808	207,756	389,610	1,237,332	1,237,332	0	5,986,219 ^e	7,613,161	6.84%
1986	1988	116,117,645	0	281,660	646,833	646,833	0	5,148,000	6,076,493	5.23%
1987	1989	110,036,728	209,063	124,045	3,715,739	2,474,884	0	29,698	2,628,627	2.39%
1988	1990	160,486,843	323,030	123,021	2,669,519	1,297,941	0	5,388,128	6,809,090	4.24%
1989	1991	113,843,914	202,265	244,589	1,089,168	650,686	339,236	3,883,058	5,117,569	4.50%
1990	1992	115,762,047	201,835	151,923	822,411	637,090	11,209	1,602,127	2,402,349	2.08%
1991	1993	112,830,588	202,421	211,257	357,058	239,178	10,516	1,095,084	1,556,035	1.38%
1992	1994	113,337,345	197,729	211,884	1,160,359	950,493	18,673	563,092	1,744,142	1.54%
1993	1995	92,723,581	196,936							

^a Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, broodstock number includes fish processed for roe as reported by PWSAC.

^b Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

^c Data for all years from ADF&G fishticket information.

^d Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

^e Contribution estimate from Geiger, 1990.

Appendix F.9. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Cannery Creek Hatchery, Prince William Sound, 1977 - 1994.

Brood Year	Return Year	Fry Release ^a	CWT Applied to Fry Release	Brood Stock ^a	Cost Recovery Harvest ^c	Total Harvest ^c	Hatchery Contribution to CR Harvest ^b	Hatchery Contribution to Other Harvest ^b	Hatchery Contribution to the CPF ^a	Total Hatchery Return	Estimated Marine Survival
1975	1977	0	0	0	0	0	0	0	0	0	0.00%
1976	1978	0	0	0	0	0	0	0	0	0	0.00%
1977	1979	0	0	0	0	0	0	0	0	0	0.00%
1978	1980	2,826,000	0	37,000	0	0	0	0	53,348	90,348	3.20%
1979	1981	2,694,000	0	69,600	0	0	0	0	71,840	141,440	5.25%
1980	1982	21,289,000	0	75,400	0	0	0	0	688,814	764,214	3.59%
1981	1983	13,933,000	0	121,300	0	0	0	0	348,141	469,441	3.37%
1982	1984	22,123,000	0	77,000	0	0	0	0	1,062,000	1,139,000	5.15%
1983	1985	31,200,000	0	172,000	0	0	0	0	2,422,000	2,594,000	8.31%
1984	1986	36,500,000	0	71,100	0	0	0	0	781,900	853,000	2.34%
1985	1987	31,115,388	218,436	308,940	41,002	41,002	0	0	1,781,784 ^c	2,131,726	6.85%
1986	1988	42,600,000	0	127,688	0	0	0	0	100,000	227,688	0.53%
1987	1989	95,571,232	172,591	127,764	631,284	500,726	0	0	4,912,175	5,540,665	5.80%
1988	1990	58,969,539	125,869	190,255	552,498	489,983	0	0	1,854,059	2,534,297	4.30%
1989	1991	143,662,511	248,193	348,539	765,430	686,043	755,077	0	6,711,637	8,501,296	5.92%
1990	1992	141,519,850	244,204	168,864	363,667	306,132	3,347	0	1,041,373	1,519,716	1.07%
1991	1993	132,166,231	160,733	183,557	172,824	92,451	0	0	436,215	712,223	0.54%
1992	1994	140,030,396	232,526	398,835	3,558,438	2,422,854	18,973	0	6,800,224	9,640,886	6.88%
1993	1995	84,616,614	143,880								

^a Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, broodstock number includes fish processed for roe as reported by PWSAC.

^b Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

^c Data for all years from ADF&G fishticket information.

^d Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

^e Contribution estimate from Geiger, 1990.

Appendix F.10. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Wally Noerenberg Hatchery, Prince William Sound, 1977 - 1994.

Brood Year	Return Year	Fry Release ^a	CWT Applied to Fry Release ^b	Brood Stock ^a	Cost Recovery Harvest ^c	Total Hatchery Contribution to CR Harvest ^b	Hatchery Contribution to Other Harvest ^d	Hatchery Contribution to the CPF ^a	Total Hatchery Return	Estimated Marine Survival
1975	1977	0	0	0	0	0	0	0	0	0.00%
1976	1978	0	0	0	0	0	0	0	0	0.00%
1977	1979	0	0	0	0	0	0	0	0	0.00%
1978	1980	0	0	0	0	0	0	0	0	0.00%
1979	1981	0	0	0	0	0	0	0	0	0.00%
1980	1982	0	0	0	0	0	0	0	0	0.00%
1981	1983	0	0	0	0	0	0	0	0	0.00%
1982	1984	0	0	0	0	0	0	0	0	0.00%
1983	1985	0	0	0	0	0	0	0	0	0.00%
1984	1986	0	0	0	0	0	0	0	0	0.00%
1985	1987	34,525,575	220,369	276,947	305,946	305,946	0	2,429,062 ^e	3,011,955	8.72%
1986	1988	7593,2715	0	222,790	443,828	443,828	0	3,200,000	3,866,618	5.09%
1987	1989	195,607,739	280,479	390,227	2,786,348	2,121,349	0	3,207,218	5,718,794	2.92%
1988	1990	159,713,663	313,004	282,022	3,364,172	2,991,569	0	10,280,000	13,553,591	8.49%
1989	1991	235,378,496	467,587	456,061	1,044,093 ^f	964,618	2,479,492	7,790,063	11,690,234	4.97%
1990	1992	214,941,068	395,313	230,590	518,652	442,702	10,781	1,322,054	2,006,127	0.93%
1991	1993	163,802,656	299,241	357,510	783,637	270,105	4,132	860,291	1,492,038	0.91%
1992	1994	172,087,494	284,957	387,692	2,407,526	1,582,480	12,533	4,162,803	6,145,508	3.57%
1993	1995	162,386,766	296,195							

^a Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, broodstock number includes fish processed for roe as reported by PWSAC.

^b Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

^c Data for all years from ADF&G fishticket information.

^d Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

^e Contribution estimate from Geiger, 1990.

^f Includes 163,583 fish made into surimi on a trial basis.

Appendix F.11. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Solomon Gulch Hatchery, Prince William Sound, 1977 - 1994.

Brood Year	Return Year	Fry Release ^a	CWT Applied to Fry Release ^b	Brood Stock ^c	Total Cost Recovery Harvest ^d	Hatchery Contribution to CR Harvest ^e	Hatchery Contribution to Other Harvest ^f	Hatchery Contribution to the CPFA ^g	Total Hatchery Return	Estimated Marine Survival
1975	1977	0	0	0	0	0	0	0	0	0.00%
1976	1978	0	0	0	0	0	0	0	0	0.00%
1977	1979	0	0	0	0	0	0	0	0	0.00%
1978	1980	0	0	0	0	0	0	0	0	0.00%
1979	1981	0	0	0	0	0	0	0	0	0.00%
1980	1982	0	0	0	0	0	0	0	0	0.00%
1981	1983	7,900,000	0	12,484	78,961	78,961	0	no estimate	91,445	1.16%
1982	1984	5,600,000	0	77,828	28,247	28,247	0	25,000	131,075	2.34%
1983	1985	8,390,000	0	196,827	223,819	223,819	0	64,961	485,607	5.79%
1984	1986	51,275,265	0	117,665	91,392	91,392	0	1,008,193	1,217,250	2.37%
1985	1987	54,630,942	0	183,411	1,106,910	1,106,910	0	4,000,000 ^e	5,290,321	9.68%
1986	1988	59,830,980	178,461	192,164	542,040	542,040	0	300,000 ^e	1,034,204	1.73%
1987	1989	130,830,267	277,365	214,891	720,048	670,952	0	2,412,008	3,297,851	2.52%
1988	1990	128,518,252	312,196	154,612	2,146,469	1,911,667	0	6,857,288	8,923,567	6.94%
1989	1991	122,255,027	210,854	275,066	3,220,450	2,900,513	0	2,515,597	5,691,176	4.66%
1990	1992	131,296,671	250,051	238,503	1,344,664	1,240,324	4,953	380,251	1,864,031	1.42%
1991	1993	86,900,725	160,733	168,749	1,326,463	942,993	0	572	1,112,314	1.28%
1992	1994	141,865,235	235,764	423,895	3,181,846	2,657,755	6,217	9,647,154	12,735,021	8.98%
1993	1995									

^a Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. VFDA provided data for all other years. Starting in 1994, broodstock number includes fish processed for roe as reported by VFDA.

^b Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

^c Data for all years from ADF&G fishticket information.

^d Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

^e Contribution estimate from Geiger, 1990.

Appendix F.12. Estimated total hatchery and wild stock production of pink salmon, Prince William Sound, 1977 to 1994.^a

Year	Total Return by Hatchery ^b						Total Wild Stock Components
	Solomon Gulch (VFDA)	Armin F Koernig (PWSAC)	Wally Noerenberg (PWSAC)	Main Bay (ADF&G - PWSAC)	Cannery Cr. (ADF&G - PWSAC)	Total Hatchery Production	
1977		27,857				27,857	5,816,401
1978		154,620				154,620	3,925,083
1979		552,955				552,955	17,335,503
1980		1,493,489			90,348	1,583,837	14,013,916
1981		2,264,854			141,440	2,406,294	19,568,866
1982		5,134,363		35,000	764,214	5,933,577	16,794,317
1983	91,445	3,722,502		496,850	469,441	4,780,238	11,567,348
1984	131,075	2,800,000		1,200,000	1,139,000	5,270,075	21,201,513
1985	485,607	5,030,616		383,000	2,594,000	8,493,223	19,938,105
1986	1,217,250	4,964,000		232,000	853,000	7,266,250	5,563,957
1987	5,290,321	7,613,161	3,011,955	328,000	2,131,726	18,375,163	13,066,944
1988	1,034,204	6,076,493	3,866,618	100,000	227,688	11,305,003	1,766,936
1989	3,297,851	2,628,627	5,718,794	0	5,540,665	17,185,937	6,610,342
1990	8,923,567	6,809,090	13,553,591	d	2,534,297	31,820,545	14,418,696
1991	5,691,176	5,117,569	11,690,234	0	8,501,296	31,000,275	9,295,456
1992	1,859,078	2,391,140	1,995,346	0	1,516,369	7,761,933	2,222,782
1993	1,112,314	1,528,425	1,492,039	0	712,223	4,845,001	3,158,118
1994	12,567,633	1,735,011	6,222,788	0	9,400,689	29,926,121	11,585,917

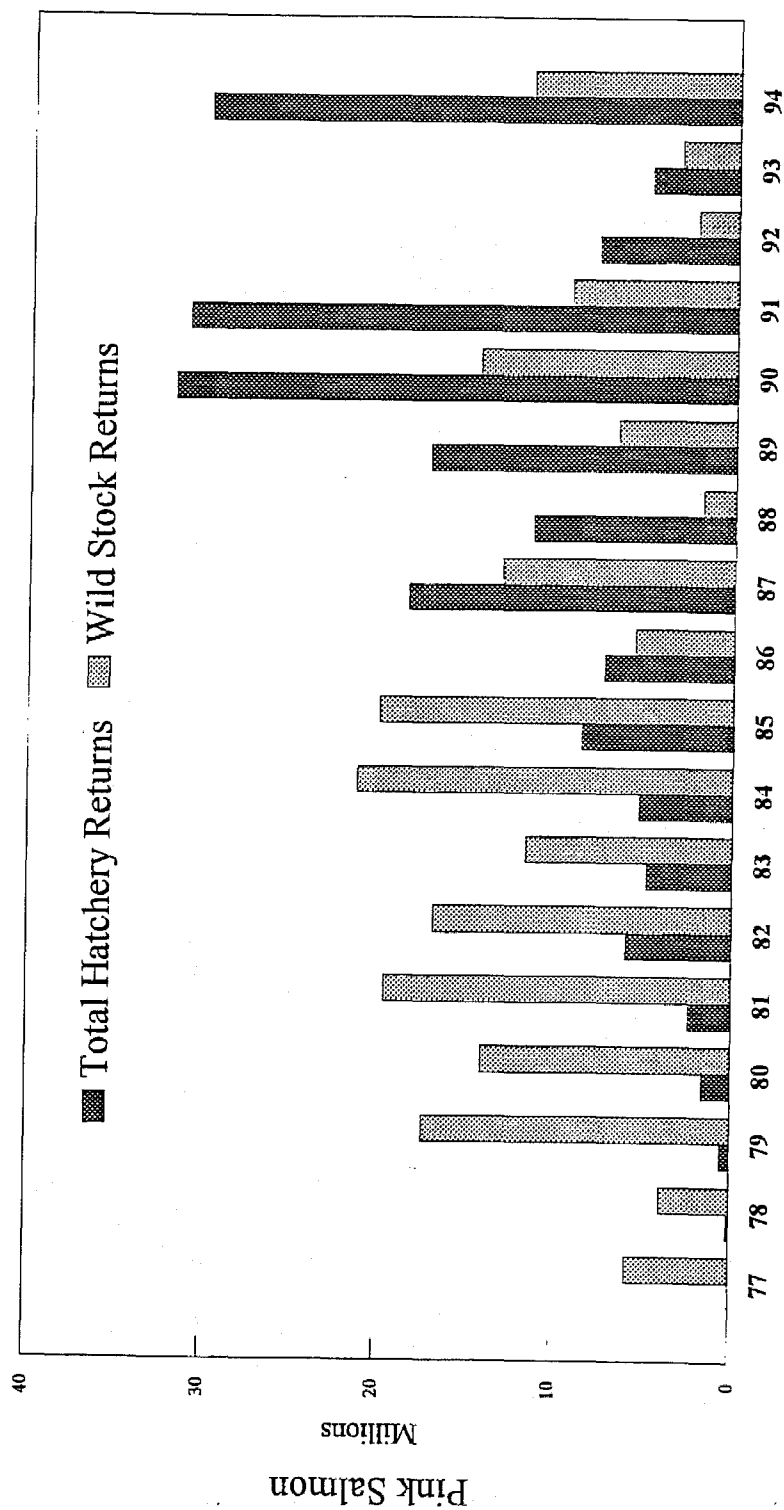
^aPrior to 1987, there was no definitive or statistically valid method of separating hatchery and wild stock composition in the commercial catch. The above estimates are based on presumed wild stock exploitation rates which in turn are determined by the wild stock escapement estimate. The wild stock escapement index is only a minimum estimate. The true wild stock escapement is not known. Consequently estimates prior to 1987 may exaggerate hatchery contributions somewhat. In 1987 returning adults from the Cannery Creek, Armin F. Koernig and Esther hatcheries were marked with half length coded wire tags. In a jointly funded program conducted by ADF&G and PWSAC, these marked fish were recovered and analyzed to estimate hatchery contributions to the fishery (Geiger, 1990).

^b Hatchery totals include cost recovery harvests, brood stock collection and escapement, and estimated common property fishery interception.

^c Total wild stock return represents the estimated wild stock catch plus the aerial escapement index. 1994 wild stock component = 10,285,917 catch plus 1,300,000 escapement index.

Hatchery and Wild Stock Pink Salmon Returns

Prince William Sound



Appendix F.13. Estimated total pink salmon returns to hatcheries and wild stock systems, Prince William Sound, 1977 - 1994.

Appendix F.14. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to all hatcheries combined, Prince William Sound, 1977 - 1994.

Brood Year	Return Year	Fry Release ^a	CWT Applied to Fry Release ^b	Brood Stock ^a	Cost Recovery Harvest ^c	Hatchery Contribution to CR Harvest ^b	Hatchery Contribution to Other Harvest ^d	Hatchery Contribution to the CPF ^a	Total Hatchery Return	Estimated Marine Survival
1975	1977	1,000,000	0	16,112	15,545	7,745	0	4,000	27,857	2.79%
1976	1978	11,010,577	0	40,432	114,188	114,188	0	0	154,620	1.40%
1977	1979	16,950,784	0	54,207	223,748	223,748	0	275,000	552,955	3.26%
1978	1980	25,600,739	0	145,061	346,728	346,728	0	1,092,048	1,583,837	6.19%
1979	1981	24,194,000	0	268,501	707,037	707,037	0	1,430,747	2,406,285	9.95%
1980	1982	91,076,000	0	239,945	1,354,732	1,354,732	0	4,303,900	5,898,577	6.48%
1981	1983	91,951,000	0	258,062	686,963	686,963	0	3,338,366	4,283,391	4.66%
1982	1984	115,107,533	0	341,259	415,393	415,393	0	3,313,423	4,070,075	3.54%
1983	1985	116,336,000	0	640,340	1,209,960	1,209,960	0	6,259,923	8,110,223	6.97%
1984	1986	191,306,265	0	466,471	905,464	905,464	0	5,662,315	7,034,250	3.68%
1985	1987	231,538,713	646,561	1,158,908	2,691,190	2,691,190	0	14,197,065	18,047,163	7.79%
1986	1988	218,830,647	568,688	824,302	1,632,701	1,632,701	0	8,748,000	11,205,003	5.12%
1987	1989	532,045,966	939,498	856,927	7,853,419	5,767,911	0	10,561,099	17,185,937	3.23%
1988	1990	507,688,297	1,074,099	749,910	8,732,658	6,691,160	0	24,379,475	31,820,545	6.27%
1989	1991	615,139,948	1,128,899	1,324,255	6,119,141	5,201,860	3,573,805	20,900,355	31,000,275	5.04%
1990	1992	603,519,636	1,091,403	789,880	3,049,394	2,626,248	30,290	4,345,805	7,792,223	1.29%
1991	1993	495,700,200	823,128	921,073	2,639,982	1,544,727	14,648	2,392,162	4,872,610	0.98%
1992	1994	567,320,470	950,976	1,422,306	10,308,169	7,613,582	56,396	21,173,273	30,265,557	5.33%
1993	1995	339,726,961								

^a Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, broodstock number includes fish processed for roe as reported by PWSAC.

^b Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

^c Data for all years from ADF&G fishticket information.

^d Includes donated and/or discarded fish in 1991. Data provided by the ADF&G CWT project.

APPENDIX G

SUBSISTENCE AND PERSONAL USE FISHERIES

Appendix G.1. Subsistence salmon harvest by species and gear type, Prince William Sound and upper Copper River, 1994.

Area	Permits Issued	Permits Fished	Gear ^a Type	Chinook	Sockeye	Coho	Pink	Chum	Other ^b	Total
Prince William Sound	4	2	D.G.N.	0	0	0			0	0
	0	0	P.S.	0	0	0			0	0
	1	0	S.N.	0	0	0			0	0
P.W.S. TOTAL	5	2		0	0	0			0	0
Copper River Flats	101	60	D.G.N.	164	474	67			3	708
Upper Copper River	267	12	D.N.	18	214	20			0	252
	703	654	F.W.	1,266	47,722	50			84	49,038
Eastern	14	4	MX.	0	50	143	50	70	0	313
Southwestern	16	8	MX.	5	192	77	402	161	0	837
Batzulnetas	1	1	F.W.	0	160	0	0	0	0	160
Total	1,107	741		1,453	48,812	357	452	231	87	51,308

^aD.G.N. = Drift gillnet; P.S. = Purse seine; S.N. = Setnet; MX. = Combination of gear (drift gillnet and dip net); D.N. = Dip Net; F.W. = Fish Wheel

^bIncludes cutthroat and Dolly Varden as well as misc. salmon species.

Appendix G.2. Salmon catch and effort in the Prince William Sound subsistence fishery,
1960 - 1994.

Year	Permits		Catch						Total
	Issued	Returned	Chinook	Sockeye	Coho	Pink	Chum	Unknown	
1960	50		1	139	505	1,292	75	150	2,162
1961	12		3	41	123	732	3		902
1962	9				119	214	142		475
1963	9				406	298	24		728
1964	15			11		900			911
1965	22	16				179	25		204
1966	3	3		3	19	20	50		92
1967	4	3			4	4			8
1968	4	3			20	156		22	198
1969	7	3			16				16
1970	1	1							0
1971	3	2				46			46
1972	0								0
1973	19	16			289				289
1974	3	1							0
1975	2	0							0
1976	0								0
1977	4	4							0
1978	3	2							0
1979	15	2							0
1980	26	15		7	6				13
1981	12	8		3	29		2		34
1982	35	27		84	4	31	24		143
1983	26	21		22	36	9	79		146
1984	8	8		10		11	2		23
1985	22	16	1	27	16	14	26		84
1986	25	14		5	15				20
1987	18	17	5	31	6		16		58
1988	7	7	2	51	7	10	9		79
1989	11	7	0	0	0	0	3	0	3
1990	8	8	0	0	7	4	0	0	11
1991	9	5	0	2	0	0	0	0	2
1992	10	6	0	20	0	0	0	0	20
1993	6	6	1	104	10	0	0	0	115
1994	5	4	0	0	0	0	0	0	0

Includes catches from Prince William Sound proper, does not include Copper River Flats.

Appendix G.3. Salmon catch and effort in the Copper River District subsistence gillnet fishery 1965 - 1994.

Year	Total Issued	Permits Issued			Catch			Total
		Fished ^b	Not Fished	Not returned	Chinook	Sockeye	Coho	
1965	31	15	5	11	12	459	85	556
1966	45	21	10	14	47	175		222
1967	61	37	19	5	83	153		236
1968	17	7	8	2	11	36		47
1969	49	20	13	16	16	63	85	164
1970	32	24	3	5	66	179		245
1971	29	17	9	3	10	32	4	46
1972	104	75	5	24	149	569	53	771
1973	94	89	N/A	5	153	326	180	659
1974	9	3	2	4	5	4	2	11
1975	2	2	N/A	0	0	5	0	5
1976	27	14	N/A	13	1	10	0	11
1977	23	22	N/A	1	10	71	0	81
1978	34	9	19	6	37	18	12	67
1979	49	21	20	8	45	26	17	88
1980	39	18	17	4	19	27	17	63
1981	72	30	21	21	48	145	104	297
1982	108	48	42	18	60	634	106	802 ^a
1983	87	31	42	14	79	107	57	254 ^a
1984	118	57	47	14	68	324	135	549 ^a
1985	94	67	27	0	88	261	83	433 ^a
1986	88	57	28	3	86	348	47	481 ^a
1987	95	39	50	6	49	359	14	510 ^a
1988	114	57	40	17	59	226	42	440 ^a
1989	75	32	32	11	56	339	51	454 ^a
1990	88	38	38	12	60	469	82	611 ^a
1991	129	72	43	14	136	830	38	1,009 ^a
1992	126	67	46	13	142	785	42	999 ^a
1993	111	50	43	18	120	428	29	601 ^a
1994	101	60	37	4	164	474	67	708 ^a

^a Total also includes dolly varden and steelhead.

^b Fished includes those permittees that were successful and those that were unsuccessful.

Appendix G.4. Salmon catch and effort in the Eastern (Tatitlek) and Southwestern (Chenega) subsistence fishery, Prince William Sound, 1988 - 1994.

Year	Permits		Catch						Total
	Issued	Fished	Chinook	Sockeye	Coho	Pink	Chum	Unknown	
EASTERN									
1988	17	9	2	210	249	143	297	0	901
1989	14	7	1	107	653	28	43	0	832
1990	13	8	0	5	241	10	4	0	260
1991	19	7	0	107	984	320	28	0	1,439
1992	15	5	2	441	369	30	49	0	891
1993	18	7	2	512	305	144	74	180	1,217
1994	14	4	0	50	143	50	70	0	313
SOUTHWESTERN									
1988	10	5	1	50	8	251	294	0	604
1989	8	7	0	322	0	554	180	0	1,056
1990	7	2	1	36	5	20	2	0	64
1991	12	4	3	345	42	195	53	0	638
1992	14	8	1	526	23	313	99	0	962
1993	22	17	2	835	50	232	124	0	1,243
1994	16	8	5	192	77	402	161	0	837

Appendix G.5. Salmon catch by species and numbers of permits by gear type for the Upper Copper River subsistence and personal use fisheries, 1981 - 1994.

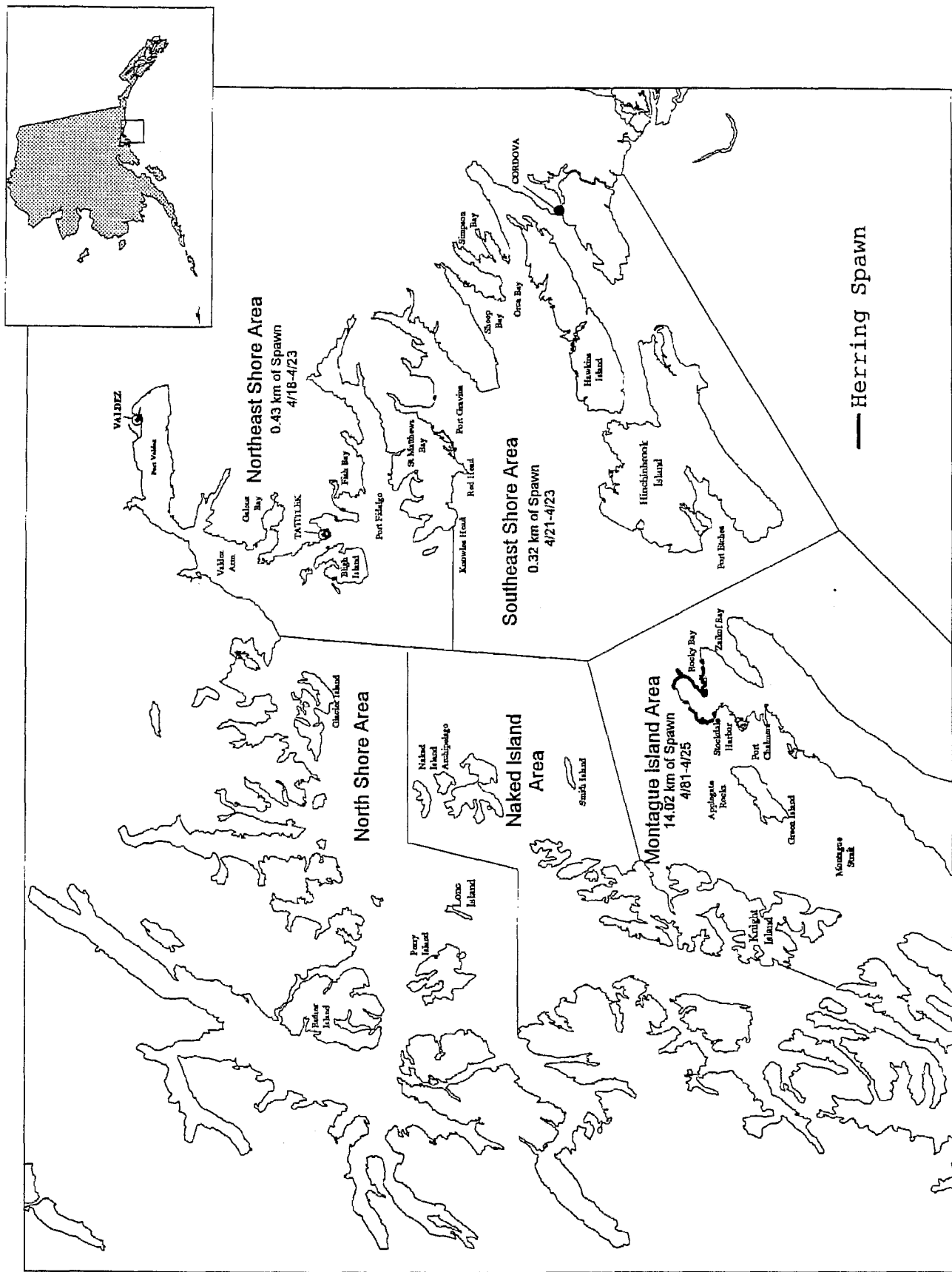
Year	Permits Issued			Reported Catch ^a			Reported Catch by Species			Total Catch	
	Dip Net	Fish Wheel	Total	Dip Net	Fish Wheel	Total	Chinook	Sockeye	Coho	Reported	Estimated
1981	3,555	523	4,078	28,872	26,924	55,796	1,913	53,008	849	55,770	68,654
1982 ^b	5,475	615	6,090	62,614	38,120	100,734	2,532	96,799	1,246	100,577	109,557
1983	6,911	630	7,541	72,257	35,971	108,228	5,421	100,995	1,690	108,106	118,599
1984 ^s	104	458	562	1,288	20,374	21,662	415	20,999	237	21,651	28,617
p	5,311	17	5,328	46,018	223	46,241	1,592	44,079	552	46,223	50,714
s&p	5,415	475	5,890	47,306	20,597	67,903	2,007	65,078	789	67,874	79,331
1985	4,153	533	5,686	29,856	22,877	52,733	1,673	50,488	544	52,705	64,164
1986 ^{sc}	39	366	405	645	25,136	25,781	622	24,890	264	25,776	28,417
p	3,966	65	4,031	41,641	1,054	42,695	2,294	39,794	521	42,609	43,959
s&p	4,005	431	4,436	42,286	26,190	68,476	2,916	64,684	785	68,385	72,376
1987 ^{sc}	59	372	431	1,114	24,157	25,271	531	21,615	105	22,251	34,080
p	4,186	73	4,259	42,842	567	43,409	2,749	40,285	393	43,427	46,884
s&p	4,245	445	4,690	43,956	24,724	68,680	3,280	61,900	498	65,678	80,964
1988 ^s	70	339	409	1,860	18,955	20,815	672	19,761	245	20,678	30,313
p	4,205	46	4,251	40,492	1,238	41,730	2,723	38,533	450	41,706	45,895
s&p	4,275	385	4,660	42,352	20,193	62,545	3,395	58,294	695	62,384	76,203
1989 ^s	78	308	386	2,235	25,377	27,612	744	26,716	65	27,525	29,225
p	4,447	137	4,584	53,321	3,223	56,544	2,160	53,505	825	56,490	58,858
s&p	4,525	445	4,970	55,556	28,600	84,156	2,904	80,221	890	84,015	88,083
1990 ^s	95	311	406	2,703	27,942	30,645	604	29,947	87	30,638	32,283
p	5,631	58	5,689	67,241	747	67,988	2,594	63,793	1,446	67,833	70,317
s&p	5,726	369	6,095	69,944	28,689	98,633	3,198	93,740	1,533	98,471	102,600
1991 ^s	293	418	711	6,127	31,634	37,761	1,217	36,289	213	37,719	40,070
p	6,222	NA	6,222	82,767	NA	82,767	3,947	75,499	3,264	82,710	84,622
s&p	6,515	418	6,933	88,894	31,634	120,528	5,164	111,788	3,477	120,429	124,692
1992 ^s	151	504	655	4,250	40,198	44,448	1,368	42,689	330	44,387	46,395
p	6,387	NA	6,387	89,840	NA	89,840	3,337	84,981	1,487	89,805	91,400
s&p	6,538	504	7,042	94,090	40,198	134,288	4,705	127,670	1,817	134,192	137,795
1993 ^s	14	759	773	252	49,792	50,044	1,308	48,582	70	49,960	54,370
p	7,914	NA	7,914	93,747	NA	93,747	2,729	89,629	1,358	93,716	97,500
s&p	7,928	759	8,687	93,999	49,792	143,791	4,037	138,211	1,428	143,676	151,870
1994 ^s	267	703	970	6,041	57,893	63,934	1,791	62,029	55	63,875	69,275
p	7,061	NA	7,061	95,777	NA	95,777	3,591	90,213	1,903	95,707	99,420
s&p	7,328	703	8,031	101,818	57,893	159,711	5,382	152,242	1,958	159,582	168,695

^a Includes all reported species
^b Return requirement enforced
^c Subsistence dip net catch estimated

s = subsistence
p = personal use
s&p = total catch

APPENDIX H

HERRING FISHERIES



Appendix H.1. Location of spawning herring and kilometers of shoreline observed during aerial surveys in Prince William Sound, Alaska. 1994

Appendix H.2. Prince William Sound commercial Pacific herring harvest summary with fishing location and effort by gear type for calendar year 1994.

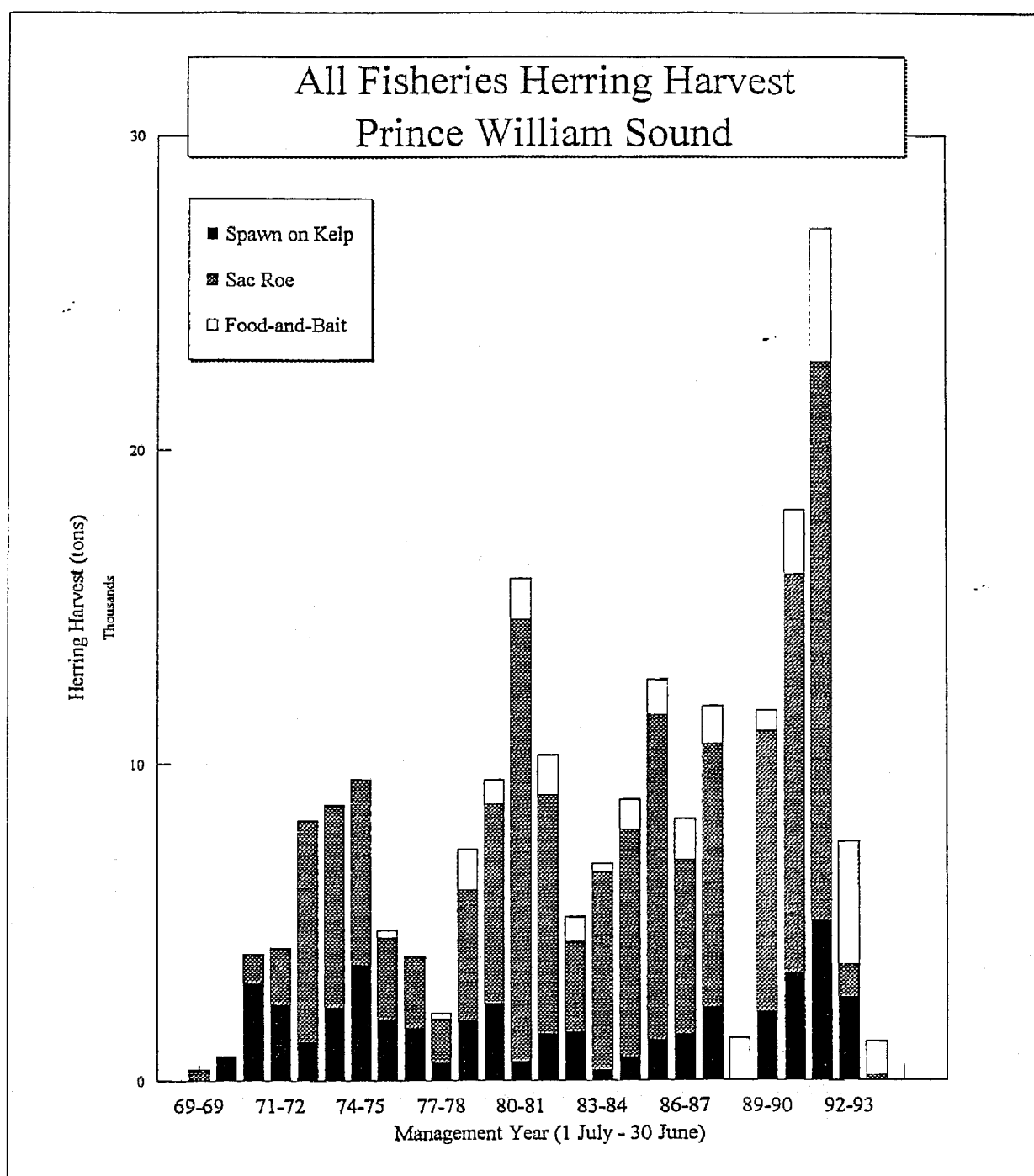
Fishery	Fishing Information				Harvest and Use (tons)	
	Area	Date	Duration	Effort	Spawn on Kelp	Pacific Herring
Sac Roe Purse Seine	NO OPENINGS					
	Montague Island - ADF&G Test Fishery, -					151.0
	Total					151.0
Sac Roe Gillnet	NO OPENINGS					
	Total					0.0
	Wild Spawn-on-Kelp ^a					
Wild Spawn-on-Kelp ^a	NO OPENINGS					
	Total				0.0	0.0 ^b
	Pound Spawn-on-Kelp ^c					
Pound Spawn-on-Kelp ^c	NO OPENINGS					
	Total				0.0	0.0 ^d
	Food/Bait Fishery					
Food/Bait Fishery	NO HARVEST					
	Total					0.0
	Harvest and Use - Total					
					0.0	0.0

a The harvest of naturally occurring herring spawn on native kelp species in Prince William Sound.

b The biomass of herring subjected to removal of reproductive capacity of the population based on the assumptions that 10% of the biomass of pre-spawning herring consists of eggs and that 80% of the weight of harvested spawn on kelp consists of eggs.

c The harvest of herring spawn on kelp produced in net pens or pounds.

d The biomass of herring subjected to stress mortality and removal of reproductive capacity of the population based on the assumption that 12.5 tons of herring are used to produce one ton of spawn on kelp.



Appendix H.3. Prince William Sound commercial herring harvest by management year and fishery.

Appendix H.4. Pacific herring sac roe seine and gillnet fishery effort, anticipated and actual harvest, Prince William Sound, 1969 - 1994.

Calendar Year	Seine Fishery							Gillnet Fishery							Total Harvest (tons)
	Opening Dates	Hours	Effort (Boats)	Guideline Harvest a	Harvest (tons)	CPUE (tons/Boat Hr)	Estimated Roe %	Opening Dates	Hours	Effort (Boats)	Guideline Harvest a	Harvest (tons)	CPUE (tons/Boat Hr)	Estimated Roe %	
1969	3/01 - 6/30		5		325.4										355.7
1970	3/01 - 6/30														919.2
1971	3/01 - 6/30		12		919.2										1,777.2
1972	3/01 - 6/30		18		1,777.2										6,991.9
1973	4/23 - 5/09		31		6,991.9										6,374.8
1974	4/10 - 4/17		72		6,371.0			4/10 - 04/17		3		3.8			5,853.8
1975	4/15 - 4/22		14	76	5,853.8	5.50			14						2,584.2
1976	5/08 & 6/01		13	66	2,584.2	3.01			13						2,267.1
1977	4/09 - 4/10		38	58	2,265.6	1.03		4/09 - 04/10		1		1.6	0.04		1,391.2
1978	4/17 - 4/21		106	75	1,329.5	0.17		4/17 - 04/21		38		61.7	0.02		4,138.0
1979	4/07 - 4/19		215.5	89	5,000	0.22		CLOSED							6,306.7
1980	4/01 - 4/09		162	76	5,000	6,042.2	0.49			16		264.4			14,002.8
1981	4/01 - 4/09		60	106	5,000	13,768.2	2.16			53	18	234.5	0.25		7,542.2
1982	4/23		2	95	5,000	7,148.3	37.62	4/16 - 4/18		54	18	393.9	0.41	12-15%	2,833.9
1983	4/13		1	103	5,000	2,728.5	26.49	4/24 - 4/26		24	22	105.4	0.20	11.0%	6,288.8
1984	4/14		3	105	5,000	5,946.1	18.88	4/21 - 4/22		59	23	342.7	0.25	8-14%	7,177.4
1985	4/28 - 4/29		4	103	5,000	6,764.1	16.42	4/18 - 4/22		34	21	413.3	0.58	10-12%	10,276.7
1986	4/17		3	106	5-7,000	9,828.1	30.91	4/29 - 5/01		90	24	448.6	0.21	11.4%	5,515.5
1987	4/08 - 4/09		1.5	96	3-5,000	4,982.2	34.60	4/24 - 4/28		24	24	533.3	0.93	9.5%	8,330.3
1988	4/21 - 4/22		2	105	4-5,000	7,977.3	37.99	4/10 - 4/11		5.5	24	353.0	2.67	10.0%	0.0
1989	Season Closed				6,400			4/23							8,867.5
1990	04/12		0.3	96	6,038	8,362.1	290.35	04/13		4	24	505.4	5.26	10.6%	12,665.1
1991	4/09, 4/10, & 4/19		1.3	104	11,232.6	11,923.0 h	85.32	04/18		10.5	24	742.0	2.94	11.06%	17,724.8
1992	4/13, 4/17, & 4/21		2.0	104	14,100.0	16,784.2 i	80.25	4/23 - 4/24		11	24	940.6	3.56	10.8%	1,029.9
1993	No Harvest				15,486.0			4/15, 4/17-4/19		36	24	1,029.9	1.19	11.01%	151.0
1994	Season Closed				0										

a Guideline harvest based on pre-season harvest projections beginning in 1986.

b An additional opening on 6/14 for 6 hours resulted in no harvest.

c Gillnet fishery closed by Board of Fisheries action.

d Out of 103 boats participating. 71 actually made deliveries.

e Out of 103 boats participating. 101 actually made deliveries.

f Out of 103 boats participating. 62 made deliveries at Montague Island and 90 made deliveries in the north-shore area.

g All Pacific herring commercial sac roe and spawn-on-kelp fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the T/V Exxon Valdez oil spill.

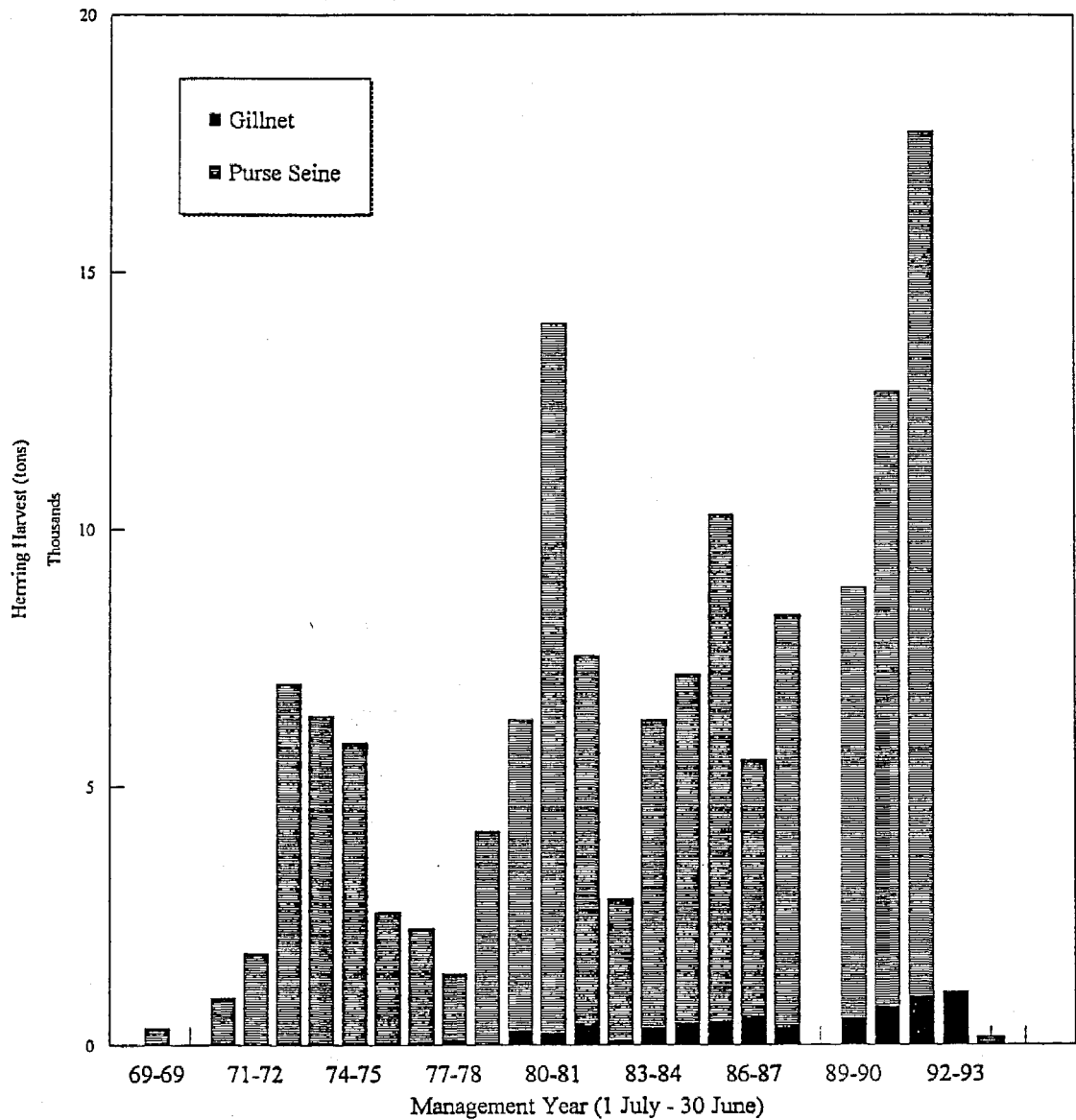
h Total for 1991 includes a 92.2 ton test fishing set made by ADF&G for aerial survey calibration.

i Total for 1992 includes a 192.5 ton test fishing set made by ADF&G for aerial survey calibration.

j Season closed due to low herring abundance.

k Harvest for 1994 consisted of a single a test fishing catch made by ADF&G for aerial survey calibration.

Sac Roe Herring Harvest by Fishery Prince William Sound



Appendix H.5.

Prince William Sound commercial herring sac roe purse seine and gillnet harvest by management year, 1969-1994.

Appendix H.6. Pacific herring spawn-on-kelp harvests from natural spawning, Prince William Sound, 1969 - 1994.

Calendar Year	Fishery Dates	Hours	Effort (Divers)	Guideline Harvest (tons)	Harvest by Kelp Species and Grounds Price (\$/lb)						Spawn-on-Kelp Harvest		Herring Utilized (tons)
					Ribbon		Sieve		Fucus				
					Percent	Price	Percent	Price	Percent	Price	Percent	Price	
1969	5/18-5/31		3								5,424	2.7	21.7
1970	4/19-6/06		34								190,374	95.2	761.5
1971	4/18-5/15		159								769,481	384.7	3,077.9
1972	4/30-5/20		397								600,453	300.2	2,401.8
1973	4/23-5/26		176								306,358	153.2	1,225.4
1974	4/22-5/04		143								580,588	290.3	2,322.4
1975	4/25-5/10		328								916,919	458.5	3,667.7
1976	4/21- ?		279								485,043	242.5	1,940.2
1977	4/27-12/31		104								417,000	208.5	1,668.0
1978	4/20-4/30		66	165	23%		50%				141,268	70.6	565.1
1979	4/25-5/03		97	200	60%	\$1.25	40%	\$0.85			474,242	237.1	1,897.0
1980	4/23-4/30	10	458	200	38%	\$1.25	60%	\$0.85			603,880	301.9	2,415.5
1981	4/25	12	196	200	83%	\$1.42	11%	\$0.95		2%	122,532	61.3	490.1
1982	5/05-5/08	73	152	187	51%	\$2.00-2.45	35%	\$1.50-1.70		6% b	291,430	145.7	1,165.7
1983	4/27	12	185	187						14% c	298,362	149.2	1,193.4
1984	Season Closed ^a		225 ^e	187									
1985	5/06 & 5/08	20	106	169	51%	\$1.25	49%	\$0.50			60,832	30.4	243.3
1986	4/30-5/03	86	29	142	97%	\$1.75		\$0.80		b	95,205	47.6	380.8
1987	4/15-4/17	44	59	103	90%	\$1.70		\$0.85		b	176,485	88.2	705.9
1988	4/29 & 4/30	12	159	103	64%	\$1.50	24%	\$0.75-1.00		12% b	194,762	97.4	779.0
1989	Season Closed ^f			110									
1990	4/21-4/22	16	134	104	37%	\$0.99	6%	\$0.52			237,575	118.8	950.3
1991	5/11-5/17	95	48	195					100%	\$0.75-0.85	215,147	107.6	860.8
1992	4/24-4/30	101	217	243	21%	\$0.70			76%	\$0.40	504,663	252.3	2,018.7
1993	4/19-4/24	114	83	268					100%	\$0.55	325,181	162.6	1,300.7
1994	Season Closed ^g			110									

^a Indicates the annual removal of reproductive capacity from the population based on the assumption that average fish roe recovery is 10% and 80% of spawn-on-kelp harvest weight consists of eggs.

^b Hair kelp.

^c Mostly *Macrocystis* spp. Some hair kelp.

^d Season remained closed due to lack of suitable spawn.

^e Permits issued.

^f All Pacific herring commercial sea roe and spawn-on-kelp fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the T/V Exxon Valdez oil spill.

^g Season remained closed due to low herring abundance.

Appendix H.7. Pacific herring spawn-on-kelp harvest produced in pounds, Prince William Sound, 1979 - 1994.

Year	Fishery Dates ^a	Effort			Guideline Harvest (tons)	Blades Per Permit Holder	Spawn-on-Kelp Harvest ^b (tons)			Herring Utilized (tons) ^c
		Permits Issued ^b	Pounds Built ^c	Pounds Produced ^d			Ribbon	Macrocystis	Total	
1979		2	0							
1980	4/14	14	4	2	8		0.9	0.4	1.3	16.6
1981	4/14	18	18	7	16		8.6	1.1	9.7	120.7
1982	4/29-5/10	25	20	18	26		25.1	0.5	25.5	319.2
1983	4/30-5/04	47	38	26	26		17.7	10.1	27.9	348.8
1984	4/24-5/08	65	45	37	26		6.4	18.8	25.8	322.8
1985	4/25-5/07	81	59	50	40		12.1	28.1	40.2	502.1
1986	4/21-4/28	104	82	81	60		0	72.2	72.2	903.0
1987	4/10-4/21	111	111	108	85		0	61.2	61.2	765.1
1988	4/12-4/23	122	122	119	85		0	123.2	123.2	1,540.5
1989 Season Closed ^f										
1990	4/11-4/26	128	128	122	118		0	98.8	98.8	1,235.3
1991	4/07-4/20	126	126	119	220	1,200	0	202.4	202.4	2,530.5
1992	4/07-4/24	127	127	127	276	1,770	0	242.2	242.2	3,027.7
1993	4/10-4/22	128	124	52	305	1,950	0	106.4	106.4	1,330.5
1994 Season Closed ^g										

^a Dates that the fishery was opened to seines for the capture and placement of Pacific herring into pounds.

^b Commissioner's permits issued to applicants on register prior to the March 1 deadline.

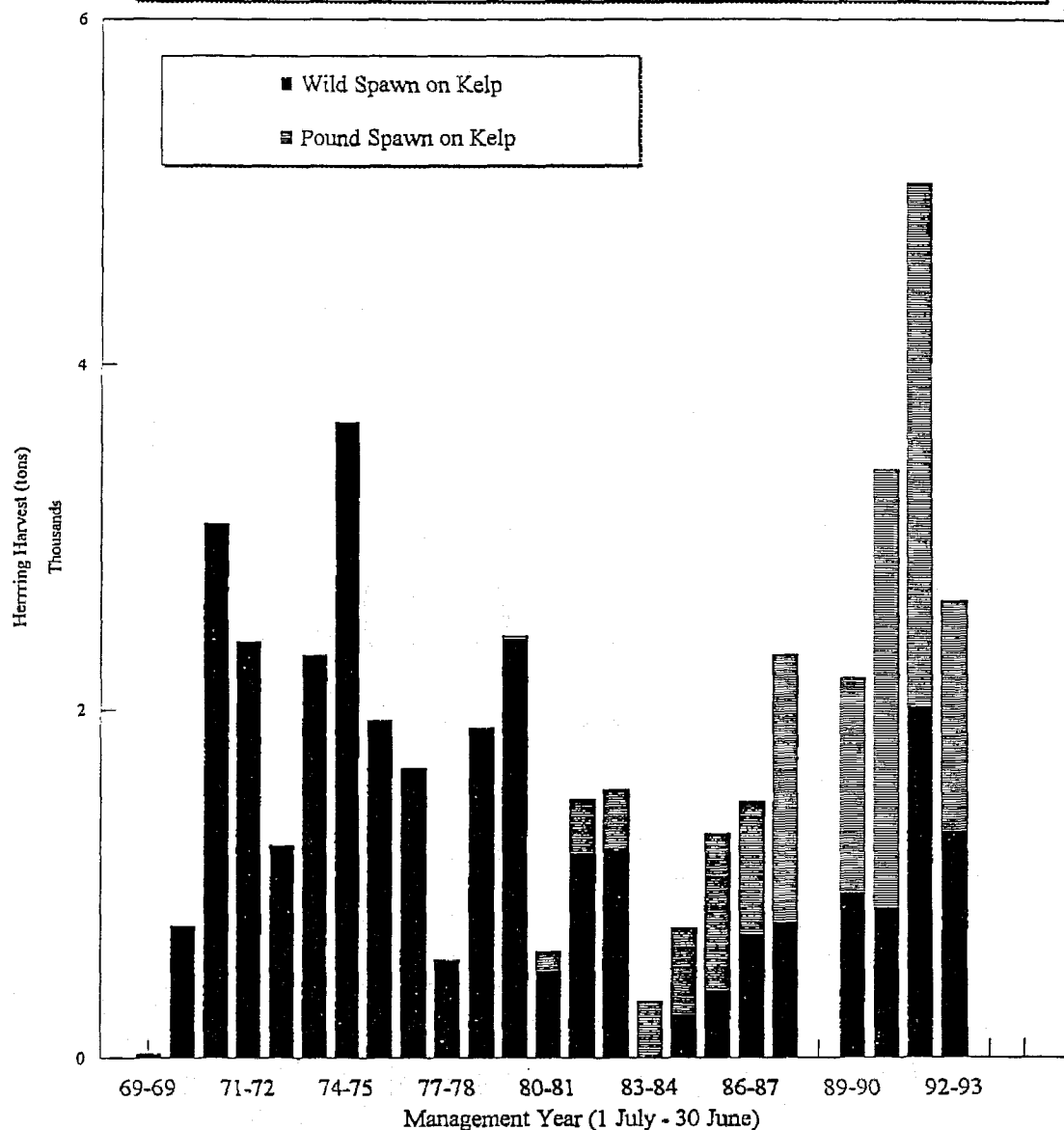
^c Number of individual pounds constructed by the April 1 deadline, and consequently the number of individuals receiving an equal allocation of the guideline harvest.

^d Number of pounds that were successful in producing spawn-on-kelp product. Due to the group cooperation in this fishery production is frequently reported for a few individuals whose pounds did not produce spawn-on-kelp product.

^e The equivalent harvest of Pacific herring due to stress mortality and the removal of reproductive capacity of the population based on the assumption that 12.5 tons of Pacific herring are used to produce 1 ton of spawn-on-kelp product.

^f All Pacific herring commercial sac roe and spawn-on-kelp fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the T/V Exxon Valdez oil spill.

Spawn on Kelp Herring Usage Prince William Sound



Appendix H.8.

Prince William Sound commercial spawn-on-kelp herring usage by management year, 1969-1994.

Appendix H.9. Prince William Sound commercial Pacific herring food/bait fishery effort and harvests, 1970-1994.

Management Year	Fishing Dates		Guideline Harvest	Purse Seine		Pair Trawl		Mid-Water Trawl		Otter Trawl		Total Harvest (tons)
	Opened	Closed		Effort (Boats)	Harvest (tons)	Effort (Boats)	Harvest (tons)	Effort (Boats)	Harvest (tons)	Effort (Boats)	Harvest (tons)	
1969-1970	10/01/69	- 06/30/70 ^a		-	14.0							14.0
1970-1971	10/01/70	- 06/30/71 ^a										0.0
1971-1972	10/01/71	- 06/30/72 ^a		-	20.0							20.0
1972-1973	10/01/72	- 05/09/73 ^a		-	9.0							9.0
1973-1974	08/27/73	- 04/17/74 ^a	b	-	8.5							8.5
1974-1975	07/15/74	- 03/10/75	b									0.0
1975-1976	06/01/75	- 06/25/75 ^c	b	4	226.7							226.7
1976-1977	02/01/77	- 03/09/77	b									0.0
1977-1978	10/01/77	- 02/28/78	b	-	17.0		145.3					162.3
1978-1979	10/16/78	- ? ^d	b	-	195.4	7	988.7	-	9.4	-	81.0	1,274.4
1979-1980	09/16/79	- 02/28/80 ^e	1,400	-	510.8	4	145.1	-	103.2	-	2.6	761.7
1980-1981	09/15/80	- 11/07/80	1,400	-	1,030.4	6	275.7					1,306.1
1981-1982	09/15/81	- 09/30/81	1,400	7	1,189.4	-	73.1					1,262.5
1982-1983	09/15/82	- 01/31/83	1,400	6	797.3							797.3
1983-1984	09/15/83	- 01/31/84	1,400	-	257.6							257.6
1984-1985	09/15/84	- 01/31/85	1,400	-	936.2							936.2
1985-1986	09/01/85	- 02/15/86	1,400	6	1,118.1							1,118.1
1986-1987	09/01/86	- 10/24/86	1,400	6	1,276.2							1,276.2
1987-1988	09/02/87	- 11/12/87 ^f	1,400	7	1,189.4							1,189.4
1988-1989	11/01/88	- 11/05/88	1,400	8	1,335.3							1,335.3
1989-1990	11/01/89	- 01/31/90	1,694	-	646.1							646.1
1990-1991	09/21/90	- 11/24/90 ^g	3,151	5	1,955.0				60.8			2,015.9
1991-1992	10/01/91	- 10/14/91	3,956	14	4,258.5							4,258.5
1992-1993	10/01/92	- 10/22/92	3,416 ^h	17	3,900.3							3,900.3
1993-1994	10/07/93	- 10/10/93	978 ⁱ	8	1,087.0							1,087.0
1994-1995	Season Closed ^j											0.0

^a Openings set by regulation. Ending date coincides with regulatory ending of sac roe season.

^b No Official quota, but unofficial goal was 1,500 tons.

^c Harvest from special June food-and-bait fishery opening. Although this harvest actually occurred at the end of the 1975 management year, it is included in the 1976 harvest management year to be consistent with other food-and-bait harvests which occur after spring sac roe fisheries.

^d Fishery closed from 1 January to 6 January 1979.

^e Fishery closed from 1 January to 15 February 1980.

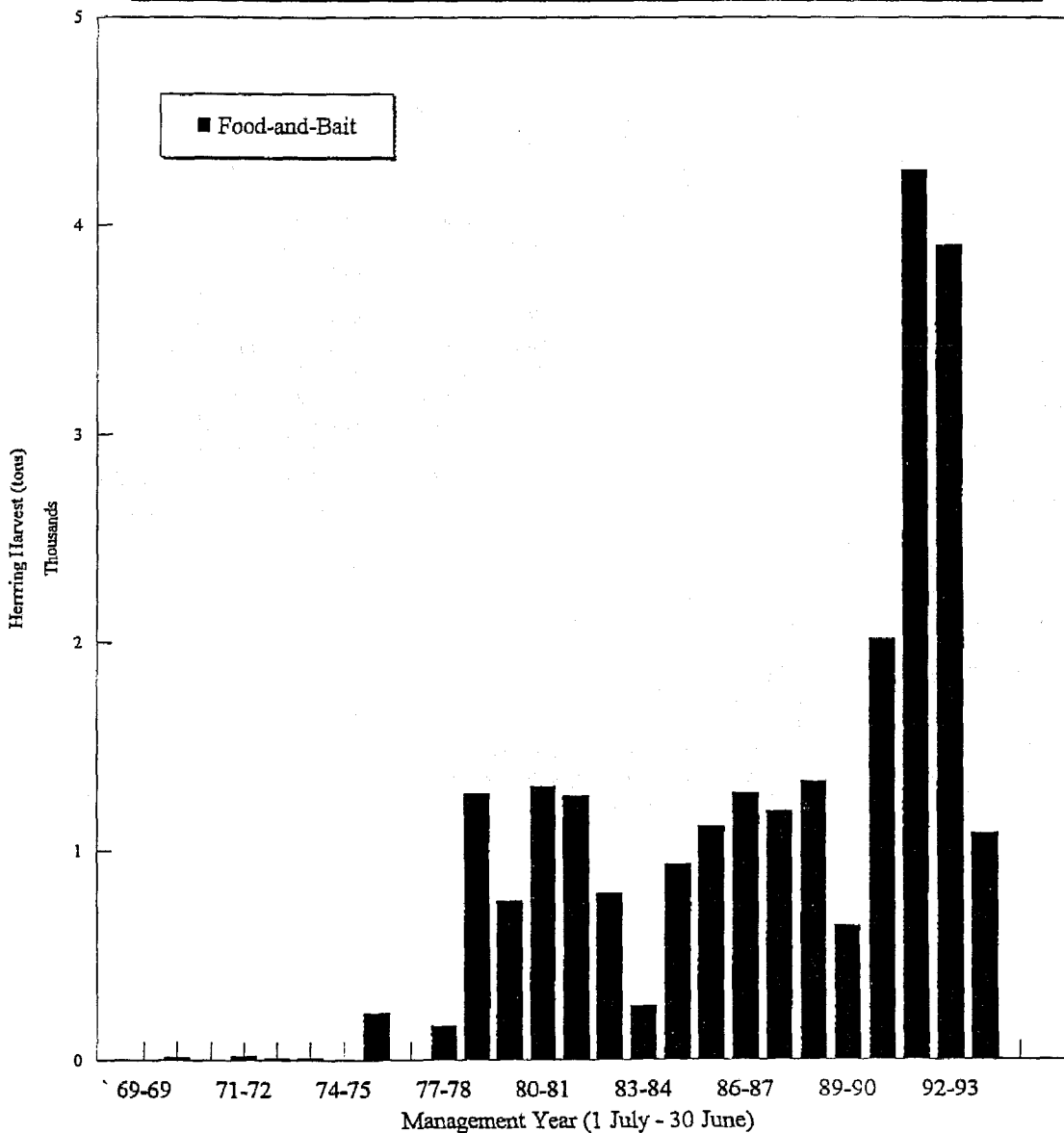
^f Fishing season opened by regulation on September 1, 1987 in the General District. The north-shore and east-shore Pacific herring districts opened on September 23. The season was closed by emergency order on October 6 for a period of five weeks, and closed for the duration of the 1987-88 season on November 12, 1987.

^g Fishery open from September 21 until November 24. The Montague Island area was open from September 24 until November 24.

^h Preseason guideline harvest level based on spawn deposition biomass estimate. Final guideline harvest based on age-structured analysis was issued in January 1993 and was 4,373 tons.

ⁱ Preseason guideline harvest level based on preliminary aerial survey biomass estimate of 40,000 tons.

Food-and-Bait Herring Harvest Prince William Sound



Appendix H.10. Prince William Sound commercial food-and-bait herring harvest, 1969-1994.

Appendix H.11. Annual Pacific herring biomass indices, Prince William Sound, for herring management years 1974-1994.

Management Year	Total Sac Roe Harvest ^a (tons)	Aerial Survey Estimates				Unexploited Escapement Biomass		Pre-Fishery Run Biomass	Acoustic Survey Estimates	
		Peak Biomass Estimate ^b (tons)	Maximum Possible Observed Biomass ^c	Miles of Spawn ^d	Mile Days of Spawn ^e	Spawn Deposition Surveys ^f (tons)	Age Structured Analysis (tons)	Age Structured Analysis (tons)	Fall (tons)	Spring (tons)
1973-1974	6,374.8	41,080	107,290	38.5	75.2					
1974-1975	5,853.8			34.2	42.4					
1975-1976	2,584.2	7,330	25,247	32.8	33.7					
1976-1977	2,267.1	16,830	17,460	39.3	73.5					
1977-1978	1,391.2	13,410	36,540	28.7	36.3					
1978-1979	4,138.0	42,100	107,390	54.5	73.2					
1979-1980	6,306.7	62,110	122,050	50.5	73.9		27,628.3	32,833.4		
1980-1981	14,002.8	77,810	161,690	85.4	140.1		25,296.9	38,799.1		
1980-1982	7,542.2	68,790	97,620	49.0	65.1		22,731.8	30,288.2		
1982-1983	2,833.9	41,850	107,710	67.4	99.8	22,000 ^g	30,407.2	33,246.8		
1983-1984	6,288.8	58,870	158,760	60.1	86.8	58,089	38,157.6	44,168.5		
1984-1985	7,177.4	20,830	60,954	101.2	149.5		49,899.4	57,153.7		
1985-1986	10,276.7	15,180	54,820	72.4	152.3		41,541.7	52,242.9		
1986-1987	5,515.5	26,580	52,192	65.3	155.9		52,462.2	57,840.4		
1987-1988	8,330.3	34,270	67,175	166.3	236.9	53,785	84,199.9	93,051.5		
1988-1989	^h 56,915	186,708	98.4	185.8	49,914	107,616.3	107,616.3	107,616.3		
1989-1990	8,867.5	57,900	145,013	94.1	144.4	127,478	98,289.7	108,457.4		
1990-1991	12,665.1	42,765	141,375	58.0	64.8	140,964	97,466.3	111,886.7		
1991-1992	17,724.8	53,835	130,569	74.7	99.5	128,263	130,100.1	148,643.2		
1992-1993	1,029.9	20,725	109,865	20.4	40.8		18,145.1	20,283.6		
1993-1994 ⁱ	0.0	19,640	154,008	14.6	20.0	17,069	18,420.7	18,420.7	22,046.2	

^a Represents the combined common property seine and gillnet sac roe harvest in short tons.

^b Largest single day aerial estimate of Pacific herring biomass in short tons.

^c The sum of all daily aerial biomass estimates for a given year.

^d Total linear miles of spawn.

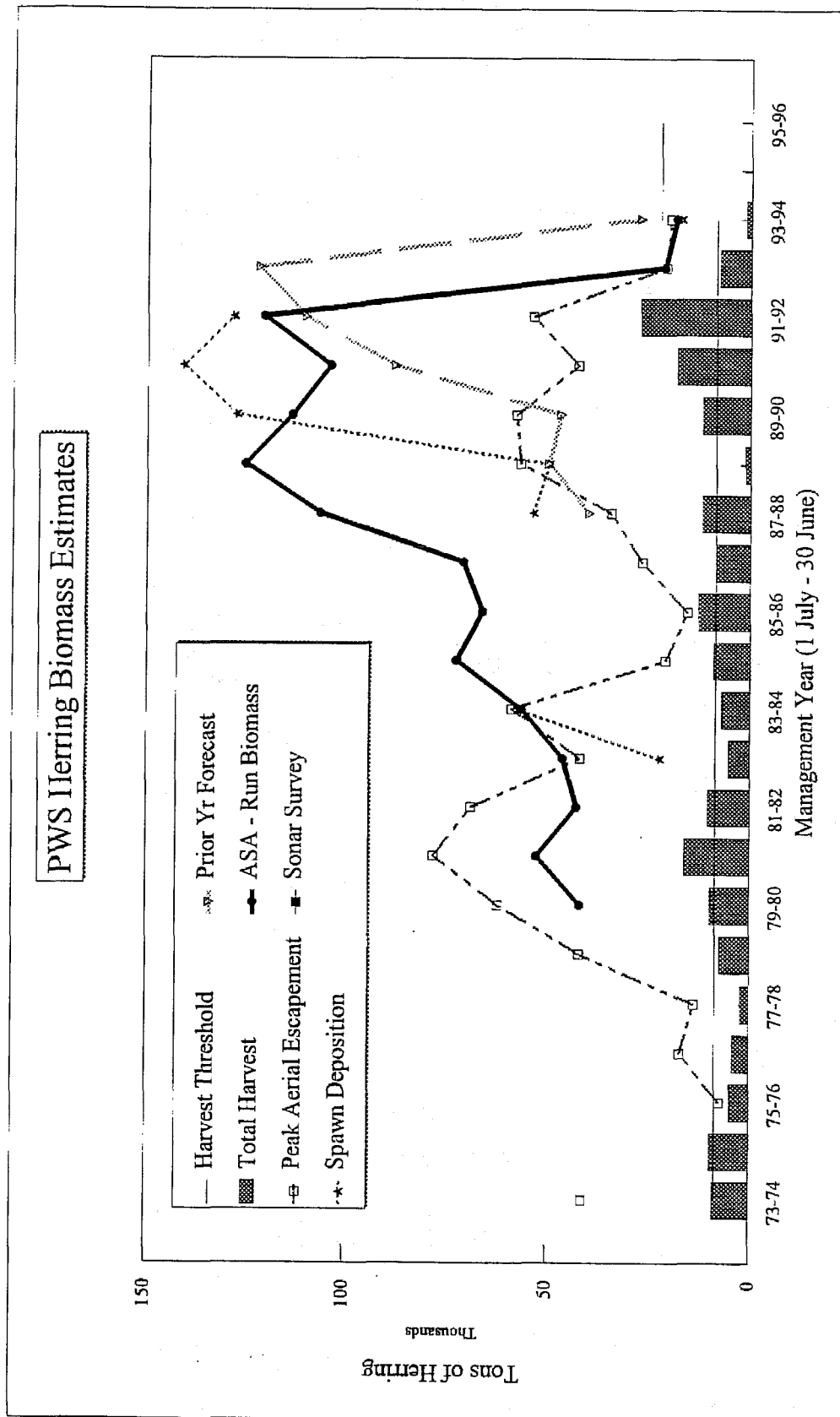
^e The sum of the daily observed linear miles of Pacific herring spawn.

^f Estimates are made from underwater surveys of spawn deposition.

^g Partial estimate of spawning biomass from feasibility study.

^h All Pacific herring commercial sac roe and spawn-on-kelp fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the TV Exxon Valdez oil spill.

ⁱ Unexploited escapement and run biomass estimates from age structured analysis, May 1995.



Appendix H.12. Prince William Sound annual herring biomass indices, harvest, and harvest threshold by management year, 1974-1994.

Appendix H.13.

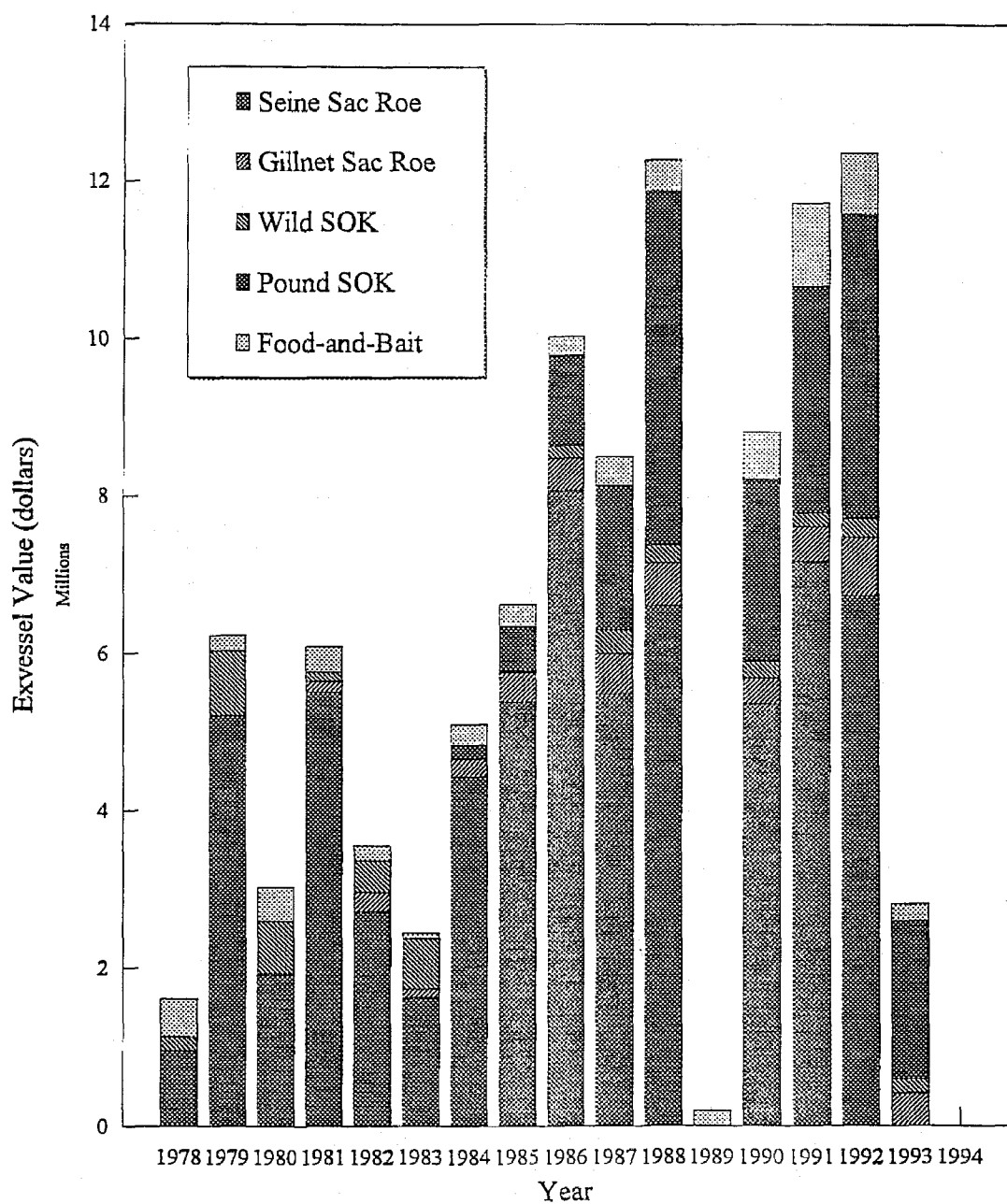
Mean price and estimated exvessel value of the commercial Pacific herring harvest by gear type based on verbal post season estimates from processors and fishermen, Prince William Sound, for calendar years 1978-1994.

Calendar Year	Sac Roe Fisheries				Spawn on Kelp Fisheries				Food-and-Bait Fishery			
	Purse Seine		Gillnet		Wild Spawn on Kelp		Pounds		Mixed Gear		TOTAL VALUE	TOTAL VALUE
	Price per ton	Total Value	Price per ton	Total Value	Price per lb	Total Value	Price per lb ^a	Total Value	Price per ton	Total Value		
1978	\$720	\$956,800		\$0	\$1.25	\$175,000		\$0	\$380	\$489,820	\$1,621,700	
1979	\$1,260	\$5,213,880		\$0	\$1.74	\$821,280		\$0	\$300	\$196,800	\$6,231,960	
1980	\$320	\$1,933,760		\$0	\$1.09	\$667,080		\$0	\$300	\$424,800	\$3,025,640	
1981	\$400	\$5,508,000		\$135,720	\$1.00	\$122,000		\$0	\$260	\$328,120	\$6,093,840	
1982	\$380	\$2,716,240		\$251,520	\$1.29	\$397,320		\$0	\$220	\$194,260	\$3,559,340	
1983	\$600	\$1,634,400		\$109,200	\$2.10	\$634,200		\$0	\$260	\$70,980	\$2,448,780	
1984	\$760	\$4,435,360		\$218,880	NO HARVEST		\$3.50	\$176,439	\$260	\$265,460	\$5,096,139	
1985	\$760	\$5,380,800		\$371,700	\$0.48	\$19,200	\$7.09	\$569,058	\$250	\$279,500	\$6,620,258	
1986	\$820	\$8,058,960		\$412,160	\$1.70	\$159,800	\$8.00	\$1,155,200	\$180	\$229,680	\$10,015,800	
1987	\$1,100	\$5,480,200		\$511,680	\$1.70	\$299,200	\$15.00	\$1,836,000	\$300	\$356,700	\$8,483,780	
1988	\$840	\$6,600,000		\$537,000	\$1.20	\$232,000	\$18.00	\$4,500,000	\$300	\$400,590	\$12,236,500	
1989	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	\$300	\$193,830	\$193,830	
1990	\$640	\$5,351,744		\$323,456	\$0.90	\$213,840	\$11.40	\$2,305,080	\$300	\$605,130	\$8,799,250	
1991	\$600	\$7,153,800		\$445,200	\$0.80	\$172,160	\$9.00	\$2,880,000	\$250	\$1,064,625	\$11,715,785	
1992	\$400	\$6,713,680		\$752,480	\$0.46	\$232,116	\$8.00	\$3,875,200	\$200	\$780,060	\$12,353,536	
1993	Not Harvested			\$411,960	\$0.55	\$178,860	\$10.00	\$2,000,000	\$200	\$217,400	\$2,808,220	
1994	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	SEASON CLOSED	\$0	

^a The price per pound for spawn on kelp in pounds is based on the final product weight, not harvest weight.

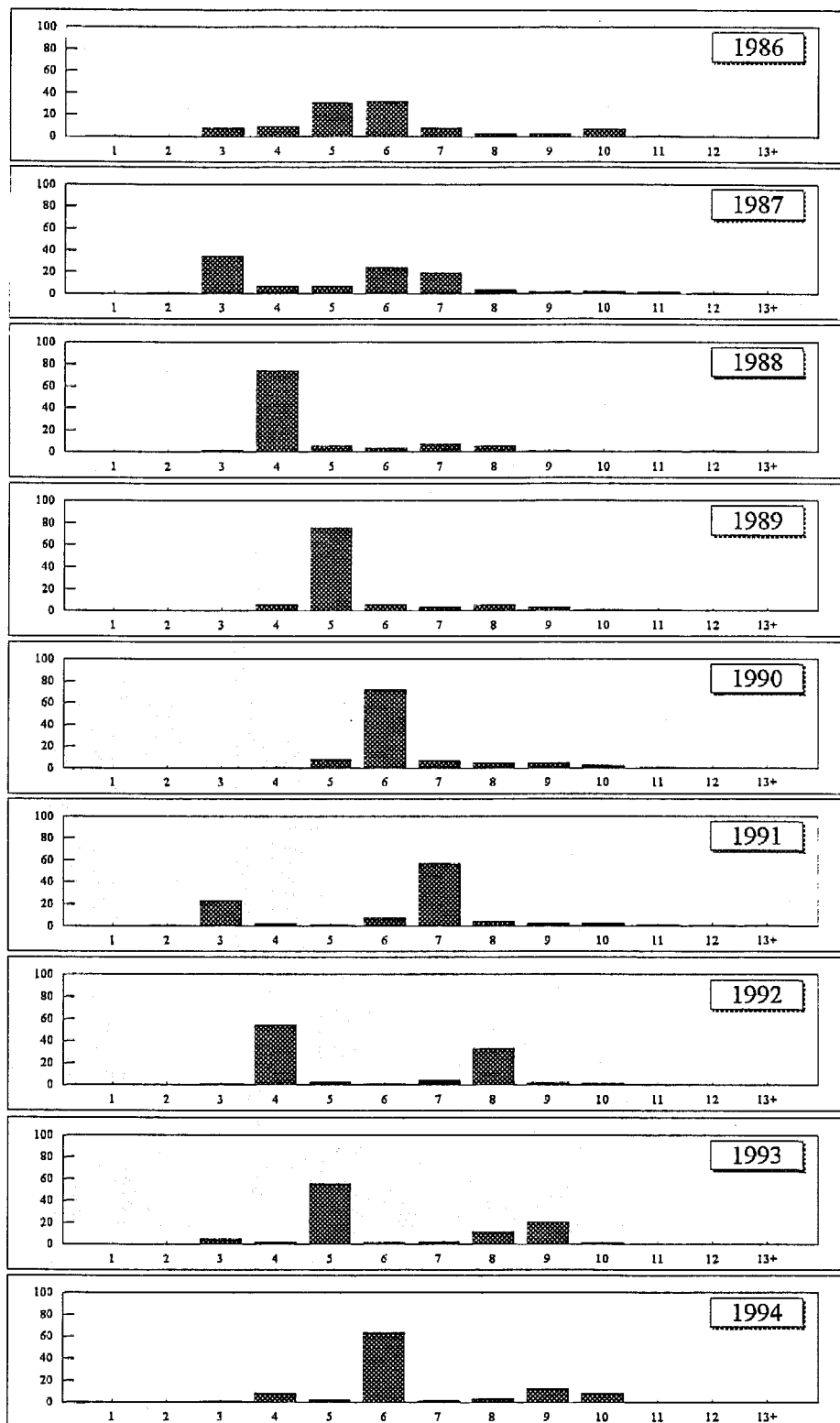
Exvessel Value of Herring Fisheries

Prince William Sound



Appendix H.14. Average annual exvessel value of commercial herring fisheries, Prince William Sound, 1978-1994.

Prince William Sound Herring Spawning Biomass Age Composition



Appendix H.15. Percent contribution by weight of each age to spring run biomass, Prince William Sound, 1986-1994.

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